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FAMILY MEDICINE

FOR INDIA

By the same Author

A MANUAL of the DISEASES of INDIA.
Fcp. 8vo. *5s.*

HEALTH in the TROPICS; or, Sanitary Art applied to Europeans in India. 8vo. 9*s.*

A MANUAL
OF
FAMILY MEDICINE
FOR INDIA

BY

W. J. MOORE

LICENTIATE OF THE ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH;
MEMBER OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND; FELLOW OF THE
UNIVERSITY OF BOMBAY; SURGEON-MAJOR H.M. INDIAN MEDICAL SERVICE, BOMBAY ESTABLISHMENT;
SURGEON TO THE RAJPOOTANA POLITICAL AGENCY; AND SUPERINTENDENT
GENERAL OF DISPENSARIES AND VACCINATION FOR RAJPOOTANA

Published under the Authority of the Government of India

SECOND EDITION

LONDON
J. & A. CHURCHILL, NEW BURLINGTON STREET
1877

151. n. 272.

PREFACE

TO

THE SECOND EDITION.

THE FIRST EDITION of the 'Manual of Family Medicine for India' was written, and the medicine chest to accompany the work was designed, with especial reference to the wants of families, and to the requirements of small Indian camps. And it is believed that no work less comprehensive and detailed, and that no medicine chest less liberally fitted, would meet the above purposes. But it soon became evident that a large class, using the 'Manual of Medicine,' desired a smaller and less expensive medicine case than that adapted for large families, small camps, or detachments. The rapid disposal of the first edition of the work afforded the opportunity of meeting this wish, and, in accordance with the desire of His Excellency the Viceroy and Governor-General in Council, a second edition of the 'Manual of Family Medicine for India' has been prepared under the design of rendering the book serviceable, with a companion medicine case of a very economical description. As little as possible of the original work has been omitted, but the text has been altered so as to suit the smaller and cheaper medicine case ; and in some instances it has been necessary to re-write the whole of the treatment. Several additions, not contained in the first edition, have also been made. When the particular drug or drugs essential for the relief of any malady is not in the case, or to be readily procured from the neighbouring bazaar, the course recommended consists of advice as to diet and general treatment, and indicates the use of such palliative drugs as are available.

A paragraph in brackets and smaller type is added to the treatment of most of the diseases, advising what medicines should, if possible, be procured from a chemist.

It is hoped that the work in its present form will prove useful in enabling the reader to recognise a malady, and as the means of avoiding improper treatment even in those cases in which the medicines most desirable may not be at hand.

December 1876.

PREFACE

TO

THE FIRST EDITION.

THE following Notifications by the Government of India sufficiently show both the origin and plan of this work—excepting as regards Chapter V., on the Feeding and Management of Infants, which was added at the Author's suggestion.

No. 440.

Extract from the Proceedings of the Government of India in the Department of Agriculture, Revenue, and Commerce,—dated Simla, the 31*st October*, 1871.

[GENERAL.]

Read—

A Memorandum, dated the 23rd September, by the Officiating Inspector-General of Forests, asking for permission to print, for circulation to Forest Officers, a Manual of Directions for the use of common medicines, and the treatment of some of the most common diseases.

Read also—

A Memorandum, dated the 2nd October, on the above, by the Secretary in this Department, suggesting the

> advisability of compiling and printing for general use by Officers whose duties compel them to reside very frequently beyond the reach of medical aid, *e.g.*, Officers in the Customs, Opium, Forests, Public Works, and other departments, a simple, brief, and concise Medical Vade Mecum.

Observations.—A simple and concise popular work on medicine suited to the wants of non-professional persons in this country has long been wanted. To the many Officers of the Forests, Survey, Customs, Opium, and other Departments, who are scattered over India in situations far removed from medical advice, simple instructions for the treatment of accidents, of diseases, and especially of those tropical diseases which are most common, and which require *early* treatment, would, it is believed, prove of much service, not only for their own use, but also for the use of their families and establishments. Such a work could not take the place of proper medical advice, nor is it proposed that it should be resorted to where such advice can be obtained; but in the absence of such assistance much might be done, and probably many lives might be saved, if a manual, well suited to the circumstances, accompanied by a small medicine-chest, were placed in the hands of all those who have no other guide.

2. Such a work, however, to be really useful, must be *extremely* simple and concise. It must contain no technical terms, and it should deal with as few remedies as possible. With this object all the medicines recommended as absolutely essential should first be enumerated, their action explained, and the proper doses, both for adults and children, stated. (Small medicine boxes will be hereafter distributed, arranged expressly with reference to this first chapter.) In the next chapter the symptoms of the chief diseases, and the treatment which is best suited to each, should be described. A third

chapter should be devoted to the diagnosis and cure of accidents; and a fourth should contain general instructions for preserving health, especially in those circumstances of exposure and of residence in unhealthy localities which so frequently attach to the performance of duty.

Resolution.—His Excellency the Viceroy and Governor-General in Council has resolved to offer a prize of Rs. 1,000 for the best manual of this kind (special regard being had to brevity and simplicity), which shall be submitted on or before the 15th October, 1872. Manuscripts should be sent to the Inspector-General of Hospitals, Indian Medical Department, Calcutta, superscribed 'Manual of Family Medicine for India.' A sealed envelope should accompany each, the outside bearing a motto, and containing within the name of the author. The work will be the property of the Government, and will be published with any additions or omissions that Government may deem necessary at the public expense, bearing the author's name.

Order.—Ordered, That a copy of this Resolution be sent to all local Governments and Administrations for general information, and to the Home Department for communication through the proper channels to all branches of the Medical services.

A. O. HUME,
Secretary to the Government of India.

Department of Agriculture, Revenue, and Commerce.

[GENERAL.]

1st *August*, 1873.

No. 623.—The Prize offered by the Government of India in Resolution No. 431–40, dated 31st October, 1871, for the compilation of the best 'Manual of Family Medicine for

India,' has been awarded to Surgeon-Major W. J. Moore, of the Rajpootana Political Agency.

A. O. HUME,
Secretary to the Government of India.

In the spirit of the first Government Notification, the use of technical terms has been as much as possible avoided, and both in the description of diseases, and in the treatment recommended, simplicity has been sought in as great a degree as the subjects permit. Slight mention of some maladies, as for instance, Bright's disease, diabetes, cancer, consumption, &c., has been made rather with the desire of affording the means of ascertaining that such affections are not present, than with the idea of enabling readers to treat those ailments. Numerous maladies well known to medical men, as for example various diseases of the liver, are not even mentioned, as their introduction might tend to confuse the unprofessional reader. For the same reasons minute details of variation of symptoms, as those for instance distinguishing *peritonitis* from *enteritis*, have not been attempted. Similarly very many medicines of acknowledged efficacy are not even named, the ingredients entering into the various prescriptions being limited to the contents of the accompanying medicine-chest. For the sake of brevity the symptoms and treatment of many diseases on which separate volumes have been written, and the uses and action of different medicines on which much more might be advantageously said, are here compressed into a few lines. In short, the aim has been to describe the more ordinary diseases and injuries in such a manner that they may be recognised and distinguished by a non-professional person, and to point out the remedies best adapted for relief or cure, so far as they can be properly or safely applied in the absence of professional aid. As may be observed, most of the diseases to which children are subject have received special attention—a feature which it is hoped will render the volume more acceptable to that large and increasing class in India whose duties necessitate the absence of their families from localities in which professional assistance is obtainable.

The various engravings illustrating different subjects have been designed with the view of diagrammatic correctness, rather than for artistic effect. Their introduction into the volume will, it is believed, tend to render many things plain, which, notwithstanding the clearest description, might otherwise be obscure to the non-professional reader. The nature of the subjects thus treated does not admit of much variety in illustration by drawings, as generally there is only one right method of treating surgical injuries, which are the principal conditions thus illustrated. Hence the diagrams must be more or less similar to those found in other surgical works, and experts may recognise some old friends amongst the woodcuts. Thus the drawings at pages 317, 384, 385, 407, 408 have been adapted from that well-known work, Dr. Druitt's 'Surgeon's Vade Mecum;' those at pages 356, 357, showing the course of the blood-vessels, from Dr. Schaible's 'First Help in Accidents.' The diagrams at pages 304, 305, showing the process of teething, are slightly altered from Dr. Ewart's edition of 'Goodeve's Management of Children in India;' while the drawings illustrating the resuscitation of the drowning were supplied through the kindness of the Secretary of the Royal Humane Society.

My acknowledgments and thanks are especially due to Sir Ranald Martin, K.C.B., for his kind advice as regards the article on Liver Affections; to Inspector-General Dr. John Murray, for similar attention to the paragraphs on Cholera; to Mr. George Nayler, formerly of the Indian Service, now Surgeon to the Hospital for Diseases of the Skin, for revision of the proofs treating of Skin Affections; to Mr. Bowman for looking through the proofs on Diseases of the Eyes; to Dr. Robert Druitt for much kind advice, and for various hints on Surgical and other subjects; and to Mr. Curtis, of the General Apothecaries' Company, for similar assistance throughout the first chapter.

Lastly, while it is freely confessed this book cannot supply the place of the physician or surgeon, it is nevertheless hoped that in their unavoidable absence, so often and so unfortunately felt in India, the volume may never be consulted without advantage to those requiring such assistance.

July 1874.

CONTENTS.

CHAPTER I.

INDIAN DOMESTIC MEDICINE.

PAGE

Contents of the Indian Medicine-Chest—Doses of Medicines—Weights and Measures used in compounding Medicines—Description and Properties of Medicines—Aromatic Spirits of Ammonia, or Sal Volatile—Chloral — Chlorodyne — Chloroform — Dover's Powder, or Compound Opium and Ipecacuanha Powder—Spirits of Nitric Ether, or Sweet Spirits of Nitre—Tincture of Ginger—Ipecacuanha Powder—Ipecacuanha Wine—Granular Effervescent Citrate of Magnesia—Camphorated Tincture of Opium, or Paregoric—Sulphate of Quinine—Podophyllum—Sulphate of Soda—Bazaar Medicines—Alum, or Phitkari—Hydrochlorate of Ammonia, or Naushadar—Assafœtida, or Hing—Bael—Castor Oil, or Rindee ka Tail—Camphor, or Kafoor—Grass Oil, or Rosa ka Tail—Sulphate of Iron—Pomegranate, or Anar—Nitrate of Potash, or Shora—Senna Leaves, or Senna Mukkee—Stramonium—Sulphur, or Ghunduk 1–26

CHAPTER II.

DISEASES.

Positions of Internal Organs—Symptoms of Disease—The Pulse—The Breathing or Respiratory Movement—The Temperature of the Body—The Tongue—Loss of Appetite—Cough—Delirium—Giddiness—Headache—Palpitations of the Heart—Pain—Sore Throat—Vomiting—Fever—Doses of Medicines—Abscess—Abscess of the Liver—Acidity—Acne—Ague—Anæmia—Aneurism—Angina Pectoris—Aphonia—Aphthæ—Apoplexy—Asthma—Asphyxia from Heat—Atrophy—

PAGE

Beri-Beri—Bilious Attack—Inflammation of the Bladder—Stone in the Bladder—Inflammation of the Bowels—Obstruction of the Bowels—Protrusion of the Bowels—Boils—Inflammation of the Brain—Congestion of the Brain—Water on the Brain—Inflammation of the Breast—Abscess of the Breast—Irritable Breast—Sore Nipples—Cancer of the Breast—Bed Sores—Bright's Disease—Bronchitis—Bronchitis of Children—Brow Ague—Bubo—Bunion—Burning of the Feet—Cancer—Cancer of the Breast, Womb, Liver, Stomach, and Skin—Catarrh—Cataract—Change of Life—Chaps—Chilblains—Chicken-pox—Cholera—Cholera in Infants or Children—Prevention of Cholera—Club-foot—Colic—Constipation—Consumption—Convulsions—Convulsions of Children—Cold in the Head—Corns—Cramps in the Stomach—Croup—Spasmodic Croup—Cough—Debility—Delirium—Delirium Tremens—Derbyshire Neck—Diabetes—Diarrhœa—Diphtheria—Dropsy—Dysentery—Dysentery in Children—Dyspepsia—Diseases of the Ear—Eczema—Epilepsy—Eruptions—Erysipelas—Erythema—Diseases of the Eye—Fainting, or Syncope—Fat, Accumulation of—Fever—Ardent or Sun Fever—Typhoid Fever—Typhus Fever—Relapsing Fever—Intermittent Fever—Remittent Fever—Masked Malarious Fever—Influence of the Moon on Malarious Fevers—Moon Blindness—Moon Paralysis—Rheumatic Fever—Milk Fever—Dengue Fever—Eruptive Fevers—Fistula—Fits—Enlarged Glands—Gonorrhœa—Gleet—Goître—Gout—Granulations—Gravel—Green Sickness—Grocer's Itch—Guinea Worm—Gum-boil—Diseases of the Hair—Headache—Brow Ague, or Brow-ache—Diseases of the Heart—Heartburn—Hemicrania—Hepatic Diseases—Hernia—Herpes—Hiccup—Hoarseness—Hooping Cough—Housemaid's Knee—Hydrocephalus—Hydrophobia—Hypochondriasis—Hysteria—Hydrocele—Inflammation—Influenza—Iritis—Jaundice—Inflammation of the Joints—Inflammation of the Kidneys—Inflammation of the Larynx—Diseases of the Liver—Leprosy—Loss of Voice—Lockjaw—Lumbago—Inflammation of the Lungs—Measles—Miscarriage—Mortification—Moles—Mother's Marks—Mumps—Muscæ Volitantes—Diseases of the Nails—Nævus—Sore Nipples—Neuralgia—Nervousness—Nettle Rash—Ophthalmia—Paralysis—Paraphymosis—Phymosis—Occlusion of the Female Private Parts—Piles—Pleurisy—Diseases of Pregnancy—Prickly Heat—Enlargement of the Prostate Gland—Quinsy—Rheumatism—Rickets—Ringworm—Salivation—Scabies or Itch—Scarlet Fever—Sciatica—Scrofula—Scurvy—Scorbutic Ulcer—Sea Sickness—Skin Diseases—Small-pox—Vaccination—Spitting of Blood—Spleen Disease—Rupture of the Spleen—Spots before the Eyes—Sore Throat—Stone in the Bladder—Stricture—Extravasation of Urine—Stye—St. Vitus's Dance—Swelling of the Legs—Sun-stroke—Syphilis—Teething—Growth of the Second or Permanent Teeth—Wisdom-teeth—Tetter—Tetanus—Tic-Douloureux—Toothache—Extraction of Teeth—Lancing the Gums of Children—Ulcers of the Tongue—Inflammation of the Throat—

PAGE

Thrush—Tumours—Ulcers—Bloody Urine—Diseased Conditions of the Urine—Venereal Disease—Vomiting—Warts—Wetting the Bed by Children—Whitlow—Whites—White Swelling—Diseases of the Womb—Worms—Worms in the Nose—Yellow Gum . . . 27-346

CHAPTER III.

ACCIDENTS AND INJURIES.

Instruments required in ordinary Surgical Practice—Catheters—Bandages—Plaster—Lint—Sponge—The Tourniquet—The Immediate Treatment of Accidents—Course of the Blood-vessels—Bleeding, or Hæmorrhage—Blisters—Bruises—Burns and Scalds—Carbuncle—Choking—Collapse—Concussion of the Brain—Concussion of the Spine—Railway Spine—Compression of the Brain—Cuts—Dislocations—Dislocation of the Jaw; of the Shoulder; of the Elbow; of the Wrist; of the Thumb and Fingers; of the Hip; of the Knee Cap; of the Knee Joint; of the Semilunar Cartilages; of the Ankle; of the Bones of the Foot—Drowning—Tenderness of the Feet—Blisters of the Feet—Foreign Bodies in the Person: in the Nose; in the Ears; in the Eyes; in the Throat and Gullet; in the Windpipe; in the Skin; under the Nails; in other Parts—Fractured or Broken Bones; Fracture of the Skull; of the Bones of the Nose; of the Lower Jaw; of the Collar-bone; of the Arm-bone; of the Forearm; of the Bones of the Hand and Fingers; of the Ribs; of the Thigh-bone; of the Knee-pan; of the Leg; of the Foot—Crutches—Ganglion—Hanging—Injuries of the Head—Injuries of the Kidneys—Injuries of the Private Parts—Poisoning by Arsenic—Poisoning by Opium—Poisoning by Aconite—Poisoning by Strychnine—Poisoning by Indian Hemp—Poisons and Antidotes—Rupture—Sprains or Strains—Injuries of the Teeth—Retention of Urine—Wounds: Wounds of Internal Organs; of the Brain; of the Lungs; of the Bowels, Liver, Spleen, and Abdominal Organs; of the Throat; of the Eyes; of the Palm of the Hand; of the Tongue; from Bites of Animals; from Snakes; from Scorpions; from Wasps; from Musquitos; from Leeches; from Fleas; from Bugs; from Lice 347-459

ADDENDUM TO CHAPTERS II. AND III.

Labour—How to make the Bed—The Woman's Dress—Natural Labour—Treatment after Labour—Secretion of Milk—Face Presentation—Foot Presentation—Hand Presentation—Twins—Bleeding—Weird—Sore Nipples—Abscess of the Breast—Phlegmasia Dolens . 459-471

APPENDIX TO CHAPTERS II. AND III.

PAGE

Prescriptions—Purgatives, Aperients, and Laxatives—Remarks on Pills—Tonics—Action of Arsenic—Liebig's Raw Meat-soup—Expectorants—Alteratives—How to make Lime Water—Action of Mercury and Calomel—Action of Iodide and Bromide of Potassium—Astringents—Stimulating Sedatives—Diuretics—Opiates—Emetics—Local Applications—Fomentations—Cooling Applications—Soothing Applications—Stimulating Applications—Lotions—Gargles—Injections, or Enemas—Irritating Applications—Blisters—Applications for Injuries—Baths—Dry Cupping—Disinfectants 472–505

CHAPTER IV.

THE PRESERVATION OF HEALTH.

Import of the Section—Climate of India—The Monsoons—Soil of India—Importance of Sanitary Measures—Heat—Headdress for India—Clothing—Protection from Indirect Heat—The Punkah, Thermantidote, and Tatty—Effects of Prolonged Heat on the System—Hill Climates—Malaria—Means of guarding against Malaria—Use of Liquor—Coffee—Tobacco—Diet—Quinine as a Prophylactic against Malaria—Malaria may be present in Water—Malaria may be absorbed by the Skin—Malaria more powerful by Night—Chill or Cold—Chill or Cold will re-excite Fever—Water—Diseases introduced into the System by Impure Water—Necessity of filtering Water—Other Means of purifying Water—Sleep—Diet—Liquor—Exercise—Clothing—Utility of Flannel—Bathing—Houses for India—Material of Indian Houses; Roof, Site, and Position; Cubic Space and Ventilation—Conservancy—Conduct of the Passions—Manner of Life during Epidemics 506–548

CHAPTER V.

ON THE FEEDING AND MANAGEMENT OF INFANTS.

Milk, the Natural Food of Infants—Many Women not able to suckle—Choice of a Wet Nurse—Composition of Milk—Reasons why Milk may disagree with an Infant—Artificial Feeding—Importance of Cleanliness—Importance of Pure Water—Use of Condensed Milk, and other Foods for Infants—When a Child may be fed with other Food than Milk—Over-feeding—Symptoms of Over-suckling—Weaning—Treatment of the New-born Infant—Division of the Navel String—Resuscitation—Washing—Clothing—Feeding of Infants—Maladies

PAGE
which may occur to Infants soon after Birth—Cry of an Infant characteristic—Method of examining an Infant—Giving Medicine to Children 549-570

CHAPTER VI.

ON THE MANAGEMENT OF THE SICK ROOM.

Temperature—Ventilation—Appearance—Cleanliness—Disposal of Dejections—Deodorisation and Disinfectants—Dietetics—Quiet—Aspect 571-580

ADDENDUM.

DIETETIC PREPARATIONS FOR THE INVALID.

Panada—Beef Tea—Savoury Beef Tea—Beef Extract—Chicken, Veal, or Mutton Tea—Flour and Milk—Milk and Suet—Bread, Jelly or Pap—Oatmeal Porridge—Oatmeal Gruel—Barley Water—Rice Water—Linseed Tea—White Wine, Whey, or Posset—Tamarind Whey—Lemonade—Bread 581-584

INDEX 585

LIST OF WOOD ENGRAVINGS.

NO.
1. Anterior view of the positions of internal organs 27
2. Posterior do. „ „ 28

THE PROGRESS OF TEETHING SHOWN IN SEVEN DIAGRAMS.

3. (1) Appearance of the two lower central incisors 304
4. (2) „ upper „ 305
5. (3) „ lower lateral „ 305
6. (4) „ upper „ 306
7. (5) „ anterior molars 306
8. (6) „ canine teeth 307
9. (7) „ second molars 307
10. The forceps used for extracting teeth 316
11. Method of extracting a front tooth with the forceps 317
12. The forceps clasping an extracted molar tooth 317
13. The key used for extracting teeth 318
14. The claw of the key round the neck of a tooth 318

LIST OF WOOD ENGRAVINGS—continued.

NO. PAGE
15. Method of extracting a back tooth with the key 318
16. Lancing the gums of children 319
17. Instruments required in ordinary surgical practice . . . 347, 348
18. A bandage or roller 350
19. Method of bandaging the hand and arm 351
20. „ the foot and leg 352
21. The surgical tourniquet 354
22. Blood-vessels of the neck and head 356
23. „ shoulder and arm 357
24. „ bend of the elbow and forearm 357
25. „ hand 357
26. „ thigh 358
27. Method of tying an artery 360
28. Method of compressing the artery of the shoulder (subclavian) . . 361
29. „ „ thigh (femoral) . . . 362
30. The stick and handkerchief tourniquet 362
31. Dislocation of the lower jaw 378
32. Method of reducing a dislocated shoulder 380
33. „ „ 381
34. „ „ 382
35. „ „ finger 384
36. Dislocation of the hip 385
37. Method of reducing a dislocated hip 386
38. Dislocation of the ankle 389
39. Method of performing artificial respiration for drowning . . . 391
40. „ „ . . 392
41. The interior of the throat and windpipe, showing the epiglottis . . 397
42. The probang 399
43. Substitute for the litter 403
44. Method of bandaging a fracture of the lower jaw 407
45. „ „ collar bone 408
46. „ „ arm bone 410
47. „ „ near the elbow 410
48. Fracture near the wrist 411
49. Splint for fracture near the wrist 412
50. Fracture of the neck of the thigh bone, near the hip joint . . . 415
51. Method of bandaging a fractured thigh 417
52. Splint for fracture of the leg 420
53. Method of bandaging a fracture of the leg when placed on the side . 421
54. „ „ heel . 422
55. Fracture of the leg immediately above the ankle 422
56. The 'cradle' for fractures 423
57. Irrigation stand 494

CASES containing the European Medicines recommended for use in the large type of this Work (*vide* page 1) can be obtained from the GENERAL APOTHECARIES' COMPANY, Berners Street, London; or from

Messrs BATHGATE & Co.	Calcutta.
Messrs SCOTT, MACAIVIE, & Co. . .	Madras.
Messrs KEMP & Co.	Bombay.

Price Rs. 20.

common names are first given, opposite which the medicines, both terms are inserted; so that, in procuring names being used, there can be no mistake:—

1. AMMONIA, AROMATIC SPIRITS OF, OR SAL VOLATILE . .	*Spiritus Ammoniæ Aromaticus.*
2. CHLORAL	*Chloral. Hydras.*
3. CHLORODYNE	*Chlorodyne.*
4. CHLOROFORM	*Chloroformum.*

5. Dover's Powder, or Compound Powder of Opium and Ipecacuanha	*Pulvis Ipecacuanhæ cum Opio.*
6. Ether, Nitric, Spirits of; or Sweet Spirits of Nitre	*Spiritus Ætheris Nitrosi.*
7. Ginger, Tincture of, Strong	*Tinctura Zingiberis Fortior.*
8. Ipecacuanha Powder	*Pulvis Ipecacuanhæ.*
9. Ipecacuanha Wine	*Vinum Ipecacuanhæ.*
10. Magnesia, Citrate of, Granular Effervescent	*Magnesiæ Citras (Granular).*
11. Opium, Camphorated Tincture of; or Paregoric	*Tinctura Camphoræ Composita cum Opio.*
12. Podophyllum	*Podophyllin.*
13. Quinine, Sulphate of	*Quiniæ Sulphas.*
14. Soda, Sulphate of	*Sodæ Sulphas.*

The medicine case also carries a minim measure, a box of scales and weights, and a small knife, or spatula.

Various other medicines, ordinarily procurable in the Indian bazaars, have been also recommended in the large type for use on emergency. The list of these medicines is as below, and the Hindustanee name is given opposite the English one:—

1. Alum	*Phitkarree.*
2. Ammonia, Hydrochlorate of; or Chloride of Ammonium, also commonly called Sal-Ammoniac	*Naushadur or Nissadal.*
3. Assafœtida	*Hing.*
4. Bael, or Ægle Marmelos	*Bael.*
5. Castor Oil	*Rindee ka Tail.*
6. Camphor	*Kafoor.*
7. Grass Oil	*Rosa ka Tail.*
8. Iron, Sulphate of; also Copperas, or Green Vitriol	*Hera-kusees.*
9. Pomegranate	*Anar.*
10. Potash, Nitrate of, or Saltpetre	*Shora.*
11. Senna	*Senna Mukki.*
12. Stramonium	*Dhatura.*
13. Sulphur	*Ghunduk.*

The appearance, use, action, and doses of the medicines above enumerated are detailed at pages 8 and 18.

It has not been considered necessary to describe the medicines which are recommended for use in the small type, to be obtained from the chemists, as the person using the Manual will not be required to manipulate them.

It should be clearly understood that the treatment of illness by the medicines in the case, or by medicines obtainable from the bazaar, as advised in the large type of Chapters II. and III., is not intended to take the place of medical assistance and advice, or even of other remedies which may be necessary; but it is offered as a substitute when such aid and means are not obtainable, and as the method by which improper treatment may be avoided.

DOSES OF MEDICINES.

With regard to doses and quantities. Unless expressly stated to the contrary, the doses mentioned in the account of diseases, and in the collection of prescriptions (*vide* Appendix to Chaps. II. and III.), are those adapted for an ordinary strong adult. The younger and less robust the child the smaller is the dose necessary, and delicate females usually require a less powerful agent than stronger women, or than those of the other sex.

The following table shows the approximate doses of medicines for different ages :—

Age above	Maximum dose one ounce	Maximum dose one drachm	Maximum dose one scruple
1 month	24 grains	3 grains	1 grain
6 „	2 scruples	5 grains	1¾ grain
1 year	1 drachm	8 grains	2½ grains
2 „	1¼ drachm	9 grains	3 grains

Age above	Maximum dose one ounce	Maximum dose one drachm	Maximum dose one scruple
3 years	1½ drachm	12 grains	4 grains
5 „	2 drachms	15 grains	5 grains
7 „	3 drachms	20 grains	7 grains
10 „	½ ounce	½ drachm	½ scruple
12 „	5 drachms	40 grains	14 grains
15 „	6 drachms	45 grains	16 grains
20 „	7 drachms	50 grains	18 grains
21 „	1 ounce	1 drachm	1 scruple

The doses of medicines stated in books are supposed to be for ordinarily strong men between twenty-one and forty-five years of age, or in the prime of life. Hence from this standard it will appear by the table, that if the dose of any medicine for a full-grown man of twenty-one years of age is one ounce (maximum dose), then the dose of the same medicine for a child above one month is twenty-four grains, for a child above five years of age two drachms, and for a child above ten years half an ounce. Or if one scruple is the proper dose for a full-grown man, the dose of the same medicine for a child seven years old will be seven grains, and for a child one month old one grain.

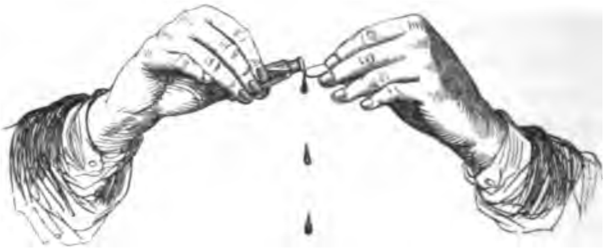
In general terms—two-thirds of the full or adult dose may be given at about sixteen years of age; half after ten; a third after six; a quarter after five; a fifth after three; a seventh after two; one-eighth after one year; one-twelfth after six months; and one-twentieth at one month.

The above may be accepted as for ordinarily strong children, but when dealing with weakly children, it may be advisable to lessen the quantities by one-sixth, up to one year of age, and by one-eighth from one year to ten years of age.

Independent of the differences which exist between the doses suited for a child and an adult, other circumstances, as sex, habit, disease, climate, mind, temperament, race, and idiosyncrasy, must often be considered when regulating the dose. Thus, as previously mentioned, delicate females require smaller doses than stronger persons; habit will enable certain people to consume large quantities of opium, arsenic, and of some other substances: in certain maladies—as, for instance, *senile gangrene*—large doses of opium produce little effect. In a tropical climate it is sometimes undesirable to use purgatives with the freedom with which they may be given in other latitudes. Mercury is borne best in hot climates, as the more free perspiration carries it out of the system, while opium is not so well tolerated because the heat increases the determination to the head; alcoholic stimulants follow the same rule, being more injurious in hot than in cold climates. A peculiar temperament often forbids an energetic treatment proper for other persons. Natives of India, as a rule, require smaller doses than Europeans. Lastly, idiosyncrasy is illustrated by the smallest particle of mercury sometimes producing salivation (*vide* p. 483), by iodide of potassium occasionally exciting symptoms of *coryza* (*vide* p. 484), by quinine causing sore throat and eruptions on the skin (*vide* p. 16), by assafœtida sometimes causing faintness (*vide* p. 20), and by ipecacuanha producing cough, sneezing, and watering of the eyes and nose (*vide* p. 12).

In the foregoing table, in the case of fluid medicines, fluid ounces and fluid drachms must be substituted for the weights of the same names, and *minims* for grains, according to apothecaries' measure as given below. In measuring minims, the small minim measure carried in the case must be used. It is numbered ten, twenty, thirty minims, up to sixty, or one drachm.

When the quantity of tinctures, oils, or other medicines is so small that it cannot be measured by minims, *drops* are ordered, which should be poured from the bottle accurately.



The bottle should be held obliquely, with the lower part of the lip resting against the stopper. The bottle should then be carefully tilted, when the contents will drop from the lower edge of the stopper. A little practice will enable any person to drop one or more drops with great exactness.

It should be remembered that drops do not necessarily equal minims, as fluids vary in density; as, for instance, oil and water. The size of the mouth of the bottle, and the manner in which the fluid is manipulated, may also vary the size of the drops. Measurement of fluids by the minim glass is therefore always adopted, unless the medicine is required in very small quantities.

Weights and Measures used in Compounding Medicines.

Apothecaries' Weight for Solids.

20 grains make	1 scruple
3 scruples „	1 drachm
8 drachms „	1 ounce
12 ounces „	1 pound

Apothecaries' Measure for Fluids.

60 minims make	1 drachm
8 drachms „	1 ounce
20 ounces „	1 pint
8 pints „	1 gallon

The grain weights, except the half-grain, are stamped with as many dots or circles ○ as they weigh grains; one mark on the one grain, two on the two grain, three on the three grain weight, and so on. On the half-grain weight are the figures ½. The larger weights are marked in English, and in the old symbolical characters.

In the case of fluid medicines, as a matter of convenience it is customary to measure the dose in some article of common use. It is therefore necessary to possess a knowledge of the relation existing between the domestic and the pharmaceutical measure. The following is a rough measurement of fluids approximating to the apothecaries' weight inserted above. This rough measurement is sufficiently accurate for giving out doses of ordinary mixtures, the active ingredients in which are diluted by water; but it should not be used to compound medicines, or to measure them in the undiluted condition:—

1 tea-spoonful . . = one drachm
1 dessert-spoonful . . = two drachms
1 table-spoonful . . = four drachms or half an ounce
1 small wine-glassful . = about two ounces

In Compounding Medicines distilled water should be used. If this cannot be procured, water which has been purified by boiling and filtering (*vide* Chap. IV. p. 530) should always be used, and the mortar, measures, knives, &c. should be kept scrupulously clean.

DESCRIPTIONS OF MEDICINES.

The appearance, properties, principal uses, and doses of the various medicines carried in the case are now briefly noted.

The prescriptions referred to by number in the account of the action of medicines, and in the treatment of diseases, will be found in the Appendix to Chaps. II. and III. p. 472.

1. **AMMONIA, AROMATIC SPIRITS of; or SAL VOLATILE** (*Spiritus Ammoniæ Aromaticus*).—Aromatic spirits of ammonia is a nearly colourless liquid, with strong ammoniacal odour, prepared by distilling carbonate of lime with oil of lemon, oil of nutmeg, and rectified spirits of wine. It is a strong diffusible stimulant, producing an agreeable glow in the system, and is used in hysteria, headache, nervous disorders, giddiness, sinking of the vital powers, palpitation, fainting, and in some forms of dyspepsia, as heartburn and acidity of the stomach. Also with opium when, as sometimes occurs in painful affections of the womb, a combination of sedative and stimulating action is required. The dose for an adult is half a drachm to a drachm. Aromatic spirits of ammonia enters into Recipes 29, 30, 47, 50, 66, 67, 68.

2. **CHLORAL** (*Chloral. Hydras*).—The hydrate of chloral, commonly called chloral, used in medicine, is produced by a chemical process from spirits of wine, chlorine gas and water. It is a white crystalline substance, generally seen in small pieces about the size of a pea, but sometimes in much larger flakes. It has a pungent odour, and a cool acrid taste, rapidly melting on the tongue.

In small doses chloral exerts a calmative influence over the system. In larger doses it induces sleep. It is given in many cases instead of opium to procure sleep, and it differs from opium in its action in not producing any excitement of the system. It has been used for neuralgia, rheumatism, convulsive cough, tetanus, delirium tremens, nervous irritability, spasmodic complaints, and in most other diseases characterised by restlessness and want of sleep. Chloral is not, however, a medicine which can be taken habitually with safety. For the habit of chloral drinking, like the habit of opium eating, or of dram drinking, is one which grows upon the person so indulging, the result being the production of a condition of system, from chloral drinking, as pitiable as that arising from either opium or spirits. As cases of poisoning have occurred from chloral, and as the drug acts more strongly on some persons than on others, it must always be used with caution. The dose for an adult is from five to ten grains as a calmative, and from fifteen to forty when required to produce sleep. After twenty grains the dose should be increased *cautiously*, by five grains at one time, up to forty grains, if necessary. Chloral is best given dissolved in a little sugar and water. A convenient form of chloral is the *syrup of chloral*, sold by the chemists, of which one fluid drachm contains ten grains of chloral. Chloral enters into Recipe 75.

3. **CHLORODYNE** (*Chlorodyne*).—Chlorodyne is a dark-coloured thick fluid containing morphia, chloroform, Indian hemp, hydrocyanic acid, peppermint, and spirit. It is agreeable to the taste, and very useful as a family medicine in slight disorders, such as stomach spasms, flatulency, griping, also for simple bronchial and asthmatic affections. In the use of chlorodyne reference must be had both to the age of the patient and to the urgency of the symptoms, also to the effect desired to be produced. The following scale of doses may be generally adopted :—

Anodyne and Diaphoretic, 5 to 15 drops.—In Coughs, Colds, Influenza, Agues.

Sedative and Anti-Spasmodic, 10 *to* 25 *drops.*—In Asthma, Bronchitis, Spasms, Cramp, Sea-Sickness.

Astringent, 15 *to* 30 *drops.*—In Cholera, Dysentery, Diarrhœa, Colics.

For children 1 to 3 months old . . .	1 to 2 drops
„ 3 „ 6 „ „ . . .	2 „ 4 „
„ 6 „ 12 „ „ . . .	3 „ 5 „
„ 1 „ 3 years „ . . .	4 „ 6 „
„ 3 „ 8 „ „ . . .	5 „ 10 „
„ 8 „ 16 „ „ . . .	8 „ 20 „

Chlorodyne may be taken in a little water, syrup, linseed tea, mucilage, or any convenient fluid, or in small quantities dropped on sugar, and repeated in diminished doses every two or three hours, until the desired effect is produced. Chlorodyne enters into Recipe 67.

Caution.—The chlorodyne bottle should be kept well corked, and be well shaken previous to taking each dose; otherwise the thicker portion falls to the bottom, and an unequal dose is the result.

4. **CHLOROFORM** (*Chloroformum*).—Chloroform is a volatile, ethereal, heavy, colourless liquid, prepared by the distillation of rectified spirits of wine with chloride of lime. The inhalation of chloroform into the lungs produces insensibility. It is thus employed to prevent pain during surgical operations. But unless properly administered it may cause sudden death, and should therefore be only employed as an inhalation under the directions of a medical man. It is used internally as a remedy for sea-sickness, for diarrhœa, for cholera, and for some other maladies. The dose for an adult is from three to five drops; to children it should not be given internally. Externally it is used with opium to form soothing and benumbing liniments or embrocations for neuralgia. Chloroform enters into the composition of Recipes 56, 66, 67, 89, 90.

5. **DOVER'S POWDER; OPIUM AND IPECACUANHA POWDER, COMPOUND**, commonly called **DOVER'S POWDER** (*Pulvis Ipecacuanhæ cum Opio*).—This medicine is here placed under the heading 'Dover's powder,' in order to render the difference between ipecacuanha powder and *compound* ipecacuanha powder (ipecacuanha powder with opium—*Dover's powder*) more apparent. Compound ipecacuanha powder is of a light yellowish-grey colour. Containing both ipecacuanha and opium, also a considerable proportion of sulphate of potash, it is useful in a great variety of complaints, particularly in chest affections, and in maladies such as rheumatism, when action on the skin is desirable; the ipecacuanha and the opium mutually aiding

the separate influence which is induced on certain parts by each medicine. In malarious seasons or localities, when the bowels are disturbed with a feverish condition of system, a combination of Dover's powder and quinine is often very beneficial. After taking Dover's powder the patient should be kept warm, and to prevent nausea, which may arise from the ipecacuanha, nothing should be drunk for some little time. The dose for adults is from five to fifteen grains.

Compound ipecacuanha powder contains one grain of opium, and one grain of ipecacuanha in every ten grains of the powder. When required for use the quantity must therefore be carefully weighed. Compound ipecacuanha powder enters into Recipes 38, 39, 40.

6. **ETHER, NITRIC, SPIRITS OF, or SWEET SPIRITS OF NITRE** (*Spiritus Ætheris Nitrosi*).—Spirits of nitric ether is a transparent liquid, with slight yellow tinge, affording an apple-like odour, and of sweet, sharp, cooling taste. It is obtained by distilling rectified spirits of wine with nitric acid. It exerts a stimulating action on the skin, leading to increase of perspiration. It also acts on the kidneys, promoting the secretion of urine, and is thus useful in many complaints, such as colds, fevers, and inflammations, when there are dryness of the skin and scanty urine. The dose for an adult is from thirty to sixty minims. For a child one year old, six to eight drops. Spirits of nitric ether enters into Recipes 29, 31, 51, 66, 71, 72, 74.

7. **GINGER, TINCTURE OF, STRONG** (*Tinctura Zingiberis Fortior*), is prepared by macerating ginger in spirits of wine, and is of a bright slightly yellowish colour. The principal use of tincture of ginger in medicine is as a warm stomachic, as which it is often beneficial in diarrhœa, flatulence, and colicky pains. It is also given in combination with other medicines of a cold nature, as acids. It is useful, diluted with about thirty parts of water, as a gargle for sore throat. The dose is from five to twenty drops for an adult.

For a child one year old, from one to four drops. Tincture of ginger enters into Recipes 2, 20, 24, 29, 52, 54.

8. **IPECACUANHA POWDER** (*Pulvis Ipecacuanhæ*).—Powdered ipecacuanha is the pulverised root of the ipecacuanha plant. It is a pale brown powder, with faint nauseous odour. In large doses ipecacuanha powder is an emetic. In smaller doses it acts on the skin, exciting perspiration, and on the windpipe and tubes leading to the lungs, promoting expectoration. It thus resembles in its action tartar emetic, but is less powerful, and does not produce the depressing effect following the use of tartar emetic. Ipecacuanha in different forms is used chiefly as an emetic in fevers, or in croup; in large doses in the treatment of dysentery; and in smaller quantities in cough, bronchial and lung affections. It should be recollected that in exceptional instances ipecacuanha, or even the smell of it, excites cough, sneezing, and watering of the eyes and nose. The dose of powdered ipecacuanha for an adult is, as an emetic, from twenty to thirty grains; for a child of one year old, from two and a half to three grains. As an expectorant, or to act on the skin, one grain for an adult, and the twelfth of a grain for a child. Powdered ipecacuanha enters into Recipes 12, 38, 39.

9. **IPECACUANHA WINE** (*Vinum Ipecacuanhæ*).—Ipecacuanha wine is made by macerating a certain quantity of ipecacuanha root in sherry wine, which liquid it resembles in appearance. Its action is the same as powdered ipecacuanha, *viz.* emetic in large doses, diaphoretic and expectorant in small doses. Ipecacuanha wine being a liquid is better adapted for children than the powder. The dose of ipecacuanha wine as an emetic for an adult is from six to eight drachms in a pint of warm water. For a child one year old, one drachm in several ounces of water. For other action, as on the skin, or to promote expectoration, from ten to twenty minims for an adult, and from four to six drops for a child.

Twenty minims of ipecacuanha wine are reputed to contain one grain of ipecacuanha, but the strength of the preparation varies, being often more powerful than the officinal computation. Ipecacuanha wine enters into Recipes 31, 34.

Note.—Another medicine containing ipecacuanha is called COMPOUND IPECACUANHA POWDER; but as it contains *Opium*, it is described under the heading of its popular name 'Dover's powder,' so that the distinction between *compound* ipecacuanha powder and ipecacuanha powder may be more marked. (*Vide* p. 10.)

10. **MAGNESIA, CITRATE OF, GRANULAR EFFERVESCENT** (*Magnesiæ Citras* [*Granular*]).—Citrate of magnesia is made from carbonate of magnesia, bicarbonate of potash, syrup of lemons, and citric acid. The Pharmacopœia preparation is a liquid, but the solid granular effervescing form is the most convenient. The latter occurs as light, white, rough-looking granules, of agreeable, slightly acid taste. Placed in water it effervesces briskly. One or two dessert-spoonfuls or more, put into a tumbler half full of water, will prove a mild but efficient aperient. A small teaspoonful taken in a wine-glassful of water will act both as an antacid and as a cooling draught. Half a teaspoonful with twenty minims of spirits of nitric ether, in one ounce and a half of water, forms a cooling febrifuge draught which may be taken during the hot stage of fevers. A cooling and refreshing drink may be made by adding to a tumblerful of cold water, previously sweetened with sugar, a small quantity of the citrate. The absence of nauseous taste renders it a favourite aperient and febrifuge for children. At one year old the dose would be one-eighth of the above-mentioned quantities.

11. **OPIUM, CAMPHORATED TINCTURE OF**, commonly called **PAREGORIC** (*Tinctura Camphoræ composita cum Opio*).—Camphorated tincture of opium is a light-coloured liquid, made by macerating opium, benzoic acid, camphor,

and anise in spirits of wine. It is a very useful preparation, particularly in most cases of cough, bronchial irritation, hooping-cough, and chest complaints. It contains two grains of opium in every ounce of the tincture, and therefore must be carefully measured. The dose for an adult is from thirty minims to one drachm, and if used alone it may be taken on white sugar. It is, however, more efficacious in combination with other remedies, as spirits of nitric ether, and ipecacuanha wine. The dose for a child six months old is three drops; one year old, six drops; two years old, eight drops. Camphorated tincture of opium enters into Recipes 30, 31, 33.

12. **PODOPHYLLUM** (*Podophyllin*).—Podophyllum is a pale greenish-brown powder, and is prepared from a creeping plant growing in America. Its action is that of a purgative, exerting an especial influence on the liver. Hence it is useful in constipation, in chronic liver affections, and in torpor of the liver. The dose as an active purgative is from one to two grains, as a milder aperient from one-third of a grain to half a grain, but delicate people generally find a little less than the above quantities sufficient. Podophyllum, although so good a medicine, has three faults. It is liable to gripe, it is long in acting, and it is sometimes uncertain in its action; at one time causing little motion of the bowels, at others an excessive flow. But by combination with other medicines it is found that all the good results may be obtained from podophyllum, and the unpleasant or uncertain effects avoided. Podophyllum is therefore seldom given alone, but generally in combination with hyoscyamus or belladonna, which prevents griping, and with rhubarb, colocynth, aloes, or blue pill, which prevents uncertain or deferred action. Podophyllum is seldom given to children.

Podophyllum has been chosen as the active ingredient of the only aperient pills carried in the small medicine case to accompany this volume, as being on the whole better adapted to the purpose than any other agent. But as no pill will suit every person, it is not intended to limit the choice of aperient pills to podophyllum, when Recipe 1 is referred to in the treatment of diseases. If, therefore, any person has a prescription for aperient pills, which he knows from experience suits his constitution, such pills may ordinarily be used instead of Recipe 1. Otherwise, in the event of Recipe 1 not answering the purpose, Recipes 8, 9, 10, 13, 14, or 15 may be procured and substituted. (*Vide* Appendix to Chapters II. and III.)

Podophyllum enters into Recipe 1.

13. **QUININE. SULPHATE OF QUININE** (*Quiniæ Sulphas*).—Sulphate of quinine is made by submitting Cinchona or Peruvian bark to a chemical action by sulphuric acid. Pure sulphate of quinine should present the appearance of silky, snow-white crystals of an intensely bitter taste, sparingly soluble in water, and imparting to it a peculiar bluish tint. It dissolves in pure sulphuric acid with a feeble yellowish tint. Ten grains with ten minims of dilute sulphuric acid should form a perfect solution. Heated to a red heat on the blade of a knife held over a spirit lamp, it is entirely destroyed and disappears, leaving only a black mark. These tests are of importance, as serving to determine whether any specimen of quinine is pure or adulterated.

The precise manner in which cinchona and quinine act on the system is not thoroughly understood; but as a substance very much resembling quinine has been found in the healthy blood, it is possible quinine supplies some constituent to that fluid, which is deficient in febrile diseases; and particularly in paroxysmal or malarious febrile diseases. It is also supposed to dull the sensibility of the nervous system, and to render the nerves less susceptible to the action of malarious influences. Quinine also exerts a certain power in reducing the temperature of the body. Applied to the white corpuscles of the blood (which are always in excess in some forms of malarious disease), it arrests their motion and apparently kills them. Lastly, it has an antiseptic power and arrests putrefaction. Thus, not only for fevers, but in neuralgic and rheumatic affections when they assume an intermittent or periodical form, recurring at intervals of days or hours, quinine is considered an efficient remedy. It should not, however, as a rule be given until the bowels have been cleared out by some laxative medicine; neither should it be ordinarily given during either the cold or hot stages of fever. But as soon as perspiration occurs, presuming the bowels in proper condition, quinine may be administered with advantage. Except under medical advice it will only be right to prescribe quinine when the fever has a little abated, or after a critical sweating, when the pulse is soft and the skin moist. It must not be given, except under medical advice, in high fever, when there is headache, or when the pulse is quick and full and the skin dry. It is best administered in solution with lemon juice or sulphuric acid (Recipes 18 and 20). But when the taste is very objectionable to the patient, or when irritability of the stomach exists, it may be given in the form of pills made up with a little gum arabic, or it may be enclosed in gelatine capsules. It sometimes happens that quinine will not produce its full effect until the system has been *alkalized*, and it is therefore advisable to give, as well as quinine during fevers, some alkaline medicine, as Recipes 55 or 73. Quinine acts very differently on various constitutions, some persons taking large doses without appreciable effect, others suffering from noises in the head, singing in the ears, eruptions on the skin, sometimes resembling 'nettle rash,' from sore throat, or from difficulty of breathing, after taking very small quantities of quinine. In exceptional instances even a grain of quinine has been known to produce such results. As a rule, sufficient quinine will have been taken when either singing or other noises in the ears occur, when the medicine should be reduced in quantity or altogether stopped. One dose, too large, may also speedily give rise to noises in the head, as above mentioned, and sometimes to deafness. Sight also may become dim, or even temporary blindness ensue. Severe frontal headache is also induced, while the face is flushed and the eyes blood shot. These effects of large doses of quinine are known as 'cinchonism.' They generally pass off altogether in a few days, but sometimes permanent singing of the ears and slight deafness remain as a result of taking quinine.

Given during fevers in repeated doses, the quantity is for adults from four to eight grains, or a larger amount may be given at one time. For children from one to four grains is the dose according to the Table of Proportions (*vide* p. 3).

In addition to the influences exerted on the general system as detailed above, quinine has also a well-ascertained influence over the digestive organs. It gives rise to a slight increase of the flow of gastric juice into the stomach, and of other secretions into the intestines. This action, together with the undoubted power of retarding putrefaction, before alluded to, renders quinine extremely serviceable in various forms of dyspepsia, marked by flatulence and acidity, and in all cases of weak digestion, especially during the convalescence from acute diseases. When quinine is thus given to aid digestion, or simply as a tonic for debility, less than half the quantities previously mentioned will be sufficient doses.

Quinine is also useful in another manner, *viz.* as a prophylactic or preventive of malarious diseases. During unhealthy seasons, or in malarious localities, all persons would do well to take a grain or two of quinine daily, either in the form of one of the Recipes given in the Appendix (Nos. 17, 18, 20) or in a little sherry wine.

Quinine enters into Recipes 3, 17, 18, 20, 25, 38, 39, 40.

14. **SODA, SULPHATE OF** (*Sodæ Sulphas*).—Sulphate of soda, better known as 'Glauber's salt,' usually occurs in the form of oblique transparent prisms; but sometimes it is seen

in a less pure condition in the shape of small acicular crystals. Sulphate of soda is formed during the process of manufacturing hydrochloric acid, but it is also found abundantly in many mineral waters of reputed efficacy, and also in sea water. It exists largely in the soil of various parts of India, and an impure salt is sold in the bazaars, in the shape of dirty brown crystalline masses, and under the names of *Khari muttee*, or *Khāri nun*. This variety is, however, scarcely ever sufficiently pure for medicinal use. Sulphate of soda is a saline purgative, producing watery stools, and sometimes acting, to a slight degree, on the kidneys. Like many other salines, when given in large doses, it slightly lowers the pulse, weakens the blood, and depresses the system. Hence it is termed a cooling purgative, and is adapted for use in inflammations, excepting inflammation of the bowels, and in fevers. With senna it may be used instead of the, to many persons, more nauseous and powerful purgative *sulphate of magnesia* or 'Epsom salts,' to form a combination in common use known as 'black draught.' Being less powerful in its action, and perhaps less nauseous as compared with Epsom salts, it is more fitted for use by delicate persons, and in all cases where a mild aperient is desirable. By increasing the quantity it acts as energetically and less unpleasantly than 'salts,' and is therefore prescribed in this Manual in most cases instead of the latter medicine. The dose for an adult is from half an ounce to one ounce, and the taste may be much disguised by a tea-spoonful of lemon juice, or by three or four drops of sulphuric acid. It should be kept in a stoppered bottle. Sulphate of soda enters into Recipes 2, 3, 4, 47.

The appearance, properties, doses, and principal uses of the medicines which are recommended as procurable in the bazaars, are now noted.

1. **ALUM.** Native name *Phitkari*. Alum exists largely in many Indian soils, and is sold in a more or less impure state

in all Indian markets. When pure, alum is a colourless crystalline, semi-transparent mass, having an acid, sweetish, astringent taste. The bazaar alum when not pure may be readily rendered fit for medicinal purposes by dissolving it in distilled water, straining, and evaporating the solution so as to obtain crystals of alum which form as the water evaporates or 'dries up.' If distilled water cannot be obtained, water which has been boiled should be used. Alum is a powerful astringent, acting by causing the tissues with which it comes into contact to shrink and contract, and thus tending to close the orifices of bleeding or secreting vessels and ducts. It is used especially as a lotion for ulcers when there is fear of 'proud flesh;' as a gargle for sore or ulcerated throats; also as an application to the eyes in ophthalmia, as a wash for sore nipples, and as an injection. It is less seldom used internally, but is beneficial in diarrhœa, and other chronic discharges. Alum enters into Recipes 58, 97.

2. **AMMONIA, HYDROCHLORATE OF, OR CHLORIDE OF AMMONIUM,** commonly called *Sal-Ammoniac*, and known in the Indian bazaars as *Naushadur* or *Nissadel*. It is principally prepared from the residue of the manufacture of coal gas, or animal charcoal. It occurs in the form of colourless, inodorous, translucent, tough, fibrous masses, difficult to pulverise, but soluble in water, and of a salt cold taste. That met with in the bazaars of India is obtained from the unburnt residue of brick kilns, in which the manure of animals is used as fuel. Indian-made sal-ammoniac is always more or less impure, and if intended for internal medicinal purposes, it requires to be dissolved in boiling water, and the solution should then be strained through calico and evaporated to crystallisation. When taken internally in small and continued doses, as eight or ten grains daily, it exerts an alterative effect. In larger doses it is stimulant, acting chiefly on the glandular structures. It has been used with advantage in chronic affections of the liver

and spleen, in neuralgic affections of the head, in rheumatic affections, and in amenorrhœa. Locally, it is applied as a lotion to enlarged glands or swellings. Its principal use is the formation with nitre of a cooling lotion; or when used with the same substance in larger quantities a freezing mixture. *Vide* Recipe 83.

3. **ASSAFŒTIDA** (*Assafœtida*). Native name *Hing.*—Assafœtida is the gum resin of a plant growing in Persia and Northern India. It occurs in the form of irregular masses, partly composed of 'tears,' of a dark pink, or, if long kept, of a dull yellow colour. Assafœtida is stimulant and antispasmodic in its medicinal action, and is useful in hysteria, flatulence, and in the nervous affections of females. The dose is from five to ten grains, but it is generally given in combination with other remedies, and it is mostly used as an injection. In exceptional instances, assafœtida excites giddiness or even fainting. It is rarely used for children. It may be obtained under the name of 'Hing' in any Indian bazaar, and is usually sufficiently pure for use, as recommended in this Manual. Assafœtida enters into Recipe 105.

4. **BAEL** (*Ægle Marmelos*, called also *Stone Apple*). Native name *Bael geerie.*—A tree growing in India the fruit of which is used medicinally. The fruit is about the size of an orange with a hard woody rind, divided inside into ten or fifteen cells, containing a quantity of seeds and tenacious transparent pulp. It has a mild turpentine-like smell and taste. It acts as an astringent to the mucous membrane of the bowels, and is also slightly aperient; a union of qualities not found in other astringents. It is useful in chronic diarrhœa and dysentery. The decoction and the syrup are the two best forms for taking bael. The decoction is made as follows: Boil three ounces of the dried fruit or one ounce and a half of the fresh fruit, discarding rind and seeds, in a pint of water until it evaporates to one half-pint. The dose is a wine-glassful for an adult three or four times daily. Syrup of bael is

prepared by adding a wine-glassful of water, and a tea-spoonful of sugar, to the soft juicy part of half a moderate-sized bael, rejecting the stringy pieces. This may be taken three times a day.

5. **CASTOR OIL** (*Oleum Ricini*). Native name *Rindee ka Tail.*—Castor oil is prepared by pressure from the seeds of the castor-oil plant. It is a mild but efficient purgative, in doses of half an ounce to an ounce for adults, and from half a drachm to two drachms for young children. As it rarely, when fresh and good, causes griping or irritation, it is to be preferred as a purgative for delicate persons and pregnant women, or for those labouring under disease of internal organs, forbidding the use of any more powerful cathartic. In ordinary constipation it is also a good aperient, for the dose, when repeated, may be gradually lessened; whereas other purgatives become less active the longer they are used, and increased quantities are necessary. The nauseous taste of castor oil may be much disguised by taking a little lemon juice into the mouth beforehand, or by taking it in peppermint water, or by mixing with an equal quantity of glycerine and flavouring with cinnamon. It is also used as an injection. Care should be taken that the oil used is fresh and good, as if at all rancid it becomes very acrimonious, causing much irritation, and sometimes troublesome diarrhœa. Castor oil enters into Recipe 106.

6. **CAMPHOR** (*Camphora*). Native name *Kafoor.*—Camphor is the concrete volatile oil of a tree growing in China and Japan. It occurs as white translucent masses of a crystalline structure, powerful odour, and pungent taste, followed by a sensation of cold. It has a stimulating effect on the system, also increasing the action of the skin, and thereby promoting perspiration. In larger doses it acts as a sedative antispasmodic. It has been employed in a large number of diseases, as hysteria, asthma, rheumatism, gout, hooping-cough, palpitations, but with doubtful efficacy in

some. The dose of camphor for an adult is from two to three or four grains. Camphor enters into Recipes 5, 32.

Preparations of camphor, which may be made as required, are CAMPHOR WATER (*Mistura Camphoræ*), and SPIRITS OF CAMPHOR (*Spiritus Camphoræ*). Camphor water is prepared by putting a few lumps of camphor into a bottle of distilled water, and allowing it to stand for a few hours. Camphor is but slightly soluble in water, so that the latter will only absorb a certain quantity of the former. Camphor water is not used as a medicine by itself, but it is useful in compounding medicines, when camphor water may be employed instead of plain water. By compounding medicines with camphor water, attention to the purity of the water is additionally secured. SPIRITS OF CAMPHOR is prepared by dissolving one drachm of camphor in one ounce and one drachm of rectified spirits of wine. Spirits of camphor is useful in a variety of maladies when a stimulant is required, as in the latter stages of fever, in palpitation of the heart, in hooping-cough, in asthma, in hysteria, and in painful menstruation. It is also a good external application to sprains, bruises, and for chronic rheumatism. The dose for an adult is from ten to thirty minims in half a wine-glassful of water. When added to water, a white deposit forms.

7. **GRASS OIL** (*Andropogon citratum*). Native name *Rosa ka Tail.*—This is the oil procured from the *Andropogon citratum* or 'Lemon Grass,' commonly cultivated in India, and in many parts growing wild. The oil is of a pale sherry colour, transparent, of a pungent taste, and lemon-like odour. It has been used in flatulent and spasmodic affections of the bowels. But its principal value is as an external application, either alone, or in combination with soap liniment, for chronic rheumatism, neuralgia, sprains, and other painful affections. The dose, when taken internally, is from three to six drops.

8. **IRON, SULPHATE OF** (*Ferri Sulphas*), commonly

known as *Copperas* or *Green Vitriol.* Native name *Hera Kusees.*—It is made by subjecting iron wire to the action of dilute sulphuric acid, and evaporating the solution to crystallisation, and has the appearance of green crystalline masses, with faint odour and ink-like taste. All the compounds of iron, though they differ in strength, possess nearly the same medicinal properties; but some are more astringent than others. The principal use of iron and its preparations is in those cases of debility accompanied by pallor, especially occurring in the female sex, and particularly in young girls. The red colour of the blood is due to a certain proportion of red corpuscles or granules which that fluid should contain, and which have iron as one of their chemical constituent parts. When these red corpuscles, which may be seen under the microscope, sink in quantity below the normal proportion, they are increased by giving iron as a medicine, and with their increase there is returning colour, health, and strength. Iron has also an influence, indirectly, over the monthly discharges of women; and is therefore often useful in irregularities of this kind. Iron may be usefully combined with quinine and other tonics. As a rule, before giving any preparation of iron, the bowels should be acted upon by purgative medicines. It should be recollected that all preparations of iron colour the stools more or less black.

The sulphate of iron, besides possessing the ordinary action of iron salts, is also powerfully astringent; but it may be given in most cases when iron is indicated as a medicine. The dose for an adult is from two to five grains; for a child from a quarter to half a grain. It is sometimes used externally, as an application to weak indolent sores, as when there is a growth of flabby, pale-looking 'proud flesh,' on which it acts if applied in substance as an 'escharotic' or caustic; if used in solution it acts less strongly, or as a stimulant. Sulphate of iron, or copperas, is also used for disinfecting purposes (*vide* p. 504), and, in the absence of other disinfecting agents, it is advised that an ounce or more of the sulphate may be put into the chamber utensil on every occasion when used, in all infectious disorders, as cholera, typhoid fever, scarlet fever, small-pox, &c.

Sulphate of iron enters into Recipes 3, 15, 23.

9. **POMEGRANATE** (*Punica Granatum*). Native name *Anar*.—Two parts of the pomegranate tree are used medicinally, *viz.* the root bark, and the dried rind of the fruit. The dried root bark occurs in the form of quills or fragments of a greyish-yellow colour externally, and yellow internally, without odour, but of an astringent slightly bitter taste. The principal uses of the root bark are as an anthelmintic, for the destruction of tape worm, as an astringent in diarrhœa and dysentery, and as a gargle for ulcerated mouth. For these purposes a decoction is made as follows. Take of fresh pomegranate root bark sliced two ounces; water two pints. Boil down to a pint and strain. For tape worm two fluid ounces should be taken fasting, and the same quantity repeated every half-hour, until six doses have been taken; then an aperient should be used. Vomiting or nausea may occur after the first dose, but this should not prevent repetition. If used for dysentery, one ounce may be taken three times a day.

A decoction of the pomegranate rind is, however, a better remedy for dysentery or diarrhœa. The decoction of the rind should be made in the same manner as the decoction of the root, and the dose is one, to one and a half ounces, three times a day. A decoction made with milk instead of water is sometimes efficacious. The watery decoction is also a good astringent gargle for relaxed or sore throat. It may be rendered more palatable by the addition of cloves or other aromatics. These decoctions of pomegranate root bark and fruit rind appear especially efficacious in the bowel complaints of the natives of India.

10. **POTASH, NITRATE OF**, commonly called **SALTPETRE**

(*Potassæ Nitras*). Native name *Shora.*—Nitrate of potash occurs in the shape of white crystalline masses, and is obtained by the solution and evaporation of the impure nitrate of potash, which exists in a natural state in the soil of many parts of India. The nitrate of potash found in the bazaars is ordinarily not sufficiently pure for internal medicinal use, but it may be readily cleansed by dissolving it in hot water, straining, and setting the solution aside to crystallise. In its medicinal action nitrate of potash is cooling, acting both on the skin and kidneys, increasing perspiration and the flow of urine. It is thus very useful in fevers, in inflammatory affections, in common colds, in rheumatism, in bronchitis, and in many other diseased conditions. A good cooling drink for fever may be composed of nitre two drachms, the juice of two limes, and water two pints, with a little sugar. The dose for an adult is from eight to twenty grains; for a child from three to five. Nitrate of potash enters into Recipes 57, 71, 72, 73, 74.

11. **SENNA LEAVES** (*Sennæ Alexandrinæ Folia*). Native name *Senna Mukkee.*—The senna plant grows in Eastern tropical Africa, in Arabia, and in most parts of India. The kind growing in Egypt is perhaps the best variety for medicinal use, as being less liable to gripe than other coarser species. The Alexandria senna leaf is about one inch in length, greyish green in colour, unequal at the base, of faint odour, and of sweetish taste. The leaf of the Indian senna (Tinnevelly) is nearly two inches long, acute in shape, also unequal at the base, green in colour, and of sweet taste. Senna is often adulterated with a very similar-looking leaf of the *Solenostemma Argel* (native name *Argel*). But these leaves are thicker and stiffer than senna; they are equal at the base, and bitterish in taste. They are purgative like senna, but their action is always attended with griping.

Senna is a safe and efficient purgative, well adapted for childhood, for old age, for pregnant females, and for delicate persons. The taste of senna may be much disguised by sweetening the infusion and adding milk, when it much resembles ordinary tea. Infusion of senna is made by steeping one ounce of senna and thirty grains of ginger in ten ounces of boiling water for one hour, and then straining. The dose for an adult is from one to two ounces. A simple, quickly prepared purgative for children may be made thus: Take of senna leaves a tea-spoonful; boiling water four ounces. Infuse for ten minutes. Pour off into a teacup and sweeten with sugar, and let the child drink it off, fasting in the morning. It may be used for a child of three or four years of age.

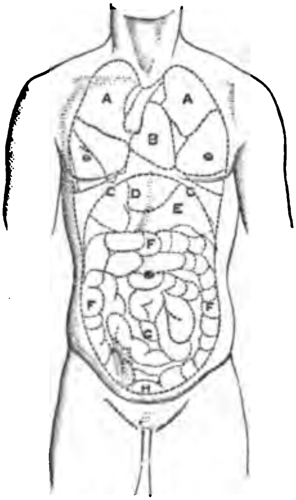
12. **STRAMONIUM** (*Dhatura Stramonium*). Native name *Dhatura.*—The leaves and stems of the dhatura—a plant growing in India—are used medicinally. The leaves are large, ovate, deeply cut, of a heavy odour, and of a mawkish, faintly bitter, nauseous taste. They are only recommended for smoking to check asthma (*vide* p. 49). The seeds of the dhatura are poisonous (*vide* POISONING BY DHATURA, p. 431). A preparation of dhatura is also used as an antidote to poisoning by opium. But as this requires some time to prepare, it cannot be available except in hospitals or dispensaries where it is kept ready made.

13. **SULPHUR** (*Sulphur Sublimatum*). Native name *Ghunduk.*—Sulphur employed in medicine is called flowers of sulphur, and is used both as an internal and an external agent. As an internal medicine it is laxative and purgative, being principally given to act on the bowels, where there are blotches or pimples on the skin. The dose for an adult is from twenty to sixty grains; for a child from two to five grains. Externally it enters into the composition of ointments, particularly for itch. Sulphur enters into Recipe 92.

CHAPTER II.

DISEASES.

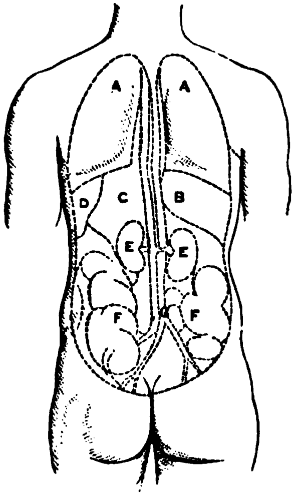
Great ignorance almost necessarily prevails respecting the locality or site within the body of most internal parts; a knowledge only to be thoroughly acquired by actual dissection,



THE FRONT OF THE BODY, SHOWING,

A A, The Lungs, one on each side.
B, The Heart enclosed in its bag, with the great blood-vessels proceeding from the upper part.
C C, The Diaphragm, or division between the chest, and the bowels, liver and stomach.
D, The Liver, partly covered by the Diaphragm.
E, The Stomach, partly covered by the Liver and Diaphragm.
F F, The Large Intestine, passing across the centre, down the left side, and up the right.
G, The Small Intestines.
H, The Bladder in the Male, and Womb in the Female.

although some useful idea of the interior arrangement of organs may be obtained from plates. Therefore before proceeding to describe the symptoms and treatment of diseases, the introduction of the accompanying rough diagrams, showing the position of the principal internal organs, appears desirable. An examination of the sketches will facilitate the formation of an opinion regarding the locality of any particular pain, so that the error of confounding symptoms arising from affections of one organ or part with symptoms connected



THE BACK OF THE BODY, SHOWING,

A A, The Posterior part of the Lungs.
B, The Back part of the Liver.
C, The Stomach.
D. The Spleen.
The mark or line above B, C, D, is the Diaphragm, which is supposed to be lifted up in order to show the position of the three organs last named, as they appear at the back.
E E, The Kidneys.
F F, The Large Intestines ascending on the right side, descending on the left.
G, The course of the large artery and vein supplying all the organs with blood.

with affections of some other part, will be less likely to be made.

Certain facts connected with the pulse, with the breathing or respiration, with the temperature of the body, and with the tongue, should be borne in mind when attempting to discover the nature of, or to treat disease.

THE PULSE.—The pulse is caused by the beating of the vessels (called *arteries*) conveying the blood from the heart to all parts of the body. For convenience it is generally felt at the wrists, but may be counted in the neck, or at the thigh, or wherever there is an artery near the surface of the body. The number of beats per minute in the healthy state varies according to age, but may be generally accepted as follows:—

At birth and till end of the first year of age .	140	beats per minute
Infancy and till end of the third year . .	120	„
Childhood or till end of the sixth year . .	100	„
Youth or till end of the seventeenth year .	90	„
Adult age or till end of the fiftieth year .	75	„
Old age	70	„

The pulse may vary from this standard to some extent, and there are a few persons in whom the pulse may be extraordinarily slow, or the reverse, and this naturally, without deviation from health. But as a very general rule, if the pulse without previous bodily exertion is quicker by eight or ten beats than the standard, or a similar number of beats lower, there is something wrong, requiring investigation and treatment. If higher, there will be more or less of feverishness present; if lower, there will be a want of tone, or *vitality* below *par*.

The educated fingers of the physician also convey through the sense of touch much information to be derived from the peculiar sensation afforded by the pulse, irrespective of the actual frequency of the beats. Thus a frequent pulse, also feeling to the fingers *large and soft*, is indicative of the premonitory stages of febrile diseases. A frequent, *hard, and full* pulse accompanies inflammations. Hectic fever is characterised by a pulse increasing in frequency after meals, or in the evening. Disease of the heart is often signified by an irregular, jerking, or intermittent pulse. A weak, thread-like pulse occurs in rapidly exhausting diseases, as cholera, or as a consequence of bleeding or hæmorrhage.

THE BREATHING OR RESPIRATORY MOVEMENT.—Breathing is consequent on the expansion or contraction of the lungs, as the air passes into, and out from, those organs. The number of breaths taken by a healthy adult, in a state of repose both of body and mind, is about one for every four beats of the pulse, but varies in different people from fifteen to eighteen per minute. As with the pulse, there are persons occasionally met with in whom the breathing may be either slower or quicker than the standard; but as a general rule deviation from the numbers given during a state of rest indicates disease. If higher, there will be generally present some malady either directly or indirectly affecting the lungs; if lower, there will be debility, or loss of vital power, or some nervous shock.

THE TEMPERATURE OF THE BODY.—The bodily temperature, as affected in disease, is also very instructive, and may be easily and readily tested by a thermometer specially constructed for the purpose, and which may be enclosed in a case, like a pencil or a pen, to prevent injury to the glass. As the most convenient place, such instruments (known as 'clinical thermometers') are generally introduced into the armpit, and the arm should be held closely to the side, so that the skin may perfectly surround the bulb of the instrument. It should be kept in this position for four or five minutes, and then the point to which the mercury has risen in the graduated tube should be read off.

The average temperature of the surface of the human body in a condition of health and repose may be stated at 98·4° Fahr. in temperate climates, but from half to a full degree higher in the hot season of tropical climates. But a rising above 99·5°, or a falling below 97·3°, are sure signs of some kind of disease when such variations are persistent. The fall is significant of depressed vitality, either from rapidly exhausting diseases, or from long-continued maladies. The rise is indicative of fever, or of some disease accompanied by fever. There is an ascertained relation between the pulse, respiration, and temperature of the body. An increase of temperature of one degree above the average corresponds with an increase of the pulse of ten beats per minute. Thus if the pulse beats sixty beats per minute when the temperature of the body is at 98°, it will count seventy at a temperature of 99°, and eighty at a temperature of 100°.

Each disease which runs a definite course, as scarlet fever, measles, small-pox, typhoid fever, rheumatic fever, rapid consumption, &c., has a characteristic and distinctive range of temperature. The observations with a clinical thermometer ought to be continued regularly, and taken at the same hours every day throughout the period of sickness. The most useful observations are those taken about eight in the morning, at noon, in the evening, and at midnight. The sensations of heat and cold as felt by patients do not always coincide with such observations. In fever cold and chilliness are often complained of when the body is really hotter than natural, and, *vice versâ*, the patient may feel hot when really cold. Hysteria, as is well known, often simulates inflammatory disease; but the temperature of hysterical patients is not increased, whereas that of persons suffering from inflammatory disease is always raised.

THE TONGUE.—This organ presents peculiarities in many maladies, of which the following are the principal:—

1. *A pale, white, tremulous tongue* denotes a weak, debilitated condition of system, and a watery state of the blood, as occurs in *anæmia.*

2. *A florid redness of the tongue* denotes plethora, or

too full a condition of the system. When there are symptoms of dyspepsia present, it denotes a similar condition of the coats of the stomach.

3. *A livid or purplish colour of the tongue* occurs in various diseases of the chest, when there is obstruction to the circulation of blood in the lungs, preventing proper oxygenation of that fluid.

4. *A furred tongue* may not indicate disease, some persons always having it even when in good health, particularly on rising in the morning. Or a furred tongue may arise from local causes, as inflammation in the mouth, throat, gums. When not referable to such causes, a furred tongue denotes some kind of febrile affection. Thus it is covered with a cream-like fur in all severe inflammations, in acute rheumatism, and in fevers. In the more advanced stages of these diseases a thick brown or black coating collects, and the tongue is dry and parched. When bright red points show through the fur (the tongue looking like a ripe strawberry, or as if sprinkled with cayenne pepper), it indicates scarlet fever, which has sometimes been first detected by this symptom. When jaundice is present, the tongue is often coloured yellow from bile. When during acute diseases, as fevers, the fur slowly clears away from the tip and edges of the tongue, and thins on the upper part, it denotes recovery. When the fur separates in flakes, leaving a smooth, red, glossy, and moist surface, it indicates some internal mischief and lingering convalescence.

5. *A tongue with red edges furred in the middle*, and particularly if furred at the base, indicates dyspepsia. If *tremulous* when protruded from the mouth, it signifies intemperance, and is frequently seen in *delirium tremens.*

6. *Loss of the power of motion of the tongue*, or its being drawn aside when protruded, are bad symptoms in fevers or other acute disorders. These symptoms also accompany paralysis.

In addition to the indications of the condition of patients to be obtained from the *Pulse*, *Breathing*, *Temperature*, and *Tongue*, various other symptoms occur, having more or less reference to the existence of certain diseases, of which they are the consequence or signs. These symptoms are:— 1. Loss of appetite. 2. Cough. 3. Delirium. 4. Giddiness. 5. Headache. 6. Palpitation. 7. Pain. 8. Sore throat. 9. Vomiting. 10. Fever.

1. **LOSS OF APPETITE.**—Loss of appetite occurs in indigestion, fever, debility, and inflammations. The appetite is almost always lost in serious illness, and when good it is usually a sign that there is not much the matter. Exceptions to this rule are, during some forms of dyspepsia or indigestion, and in the disease called 'diabetes.'

2. **COUGH.**—Cough, sometimes attended with expectoration, at others 'dry,' occurs in catarrh and influenza; also in consumption, when it is constant, with pain in the upper part of the chest, fever, and wasting of the body. In asthma, with difficulty of breathing coming on in fits, and generally in the night. In inflammation of the lungs, when the cough is followed by expectoration of a rusty colour. In pleurisy, when it is attended with stabbing pain in the side; in the croup of children, when it has a brassy sound, and is connected with dangerous inflammation of the windpipe, often terminating in choking or convulsions; in measles, with discharge from the nose, and other symptoms of a common cold; in inflammation of the bronchial tubes or passages leading to the lungs, when the cough is accompanied with fever and prostration of strength. In all these, and in various other maladies, cough is a distinguishing and prominent symptom.

3. **DELIRIUM.**—Delirium often occurs after a person has been drinking to excess, when it is generally accompanied by delusions of the mind, by trembling of the hands, and by restlessness and timidity of manner. Delirium also arises from

the weakness following continued bleeding, or from almost any cause of great exhaustion, such as bad burns, wounds, or compound fractures. It is also often present during the course of fevers. Of this *febrile delirium* there are two forms—one occurring in the early stages of fever, often marked by great excitement, struggling, and displays of strength; the second form supervening in the latter stages of fever, when the patient lies prostrate on his bed, utterly helpless, and muttering indistinctly—a condition known technically as *typhoid.*

Lastly, delirium is a symptom of inflammation or other disease of the brain when the delirium is characterised by great fury and violence.

4. **GIDDINESS.**—Giddiness may occur as a symptom of simple weakness or debility; or it may be connected with indigestion, or it may occur during fever; also from tendency to epilepsy or apoplexy.

5. **HEADACHE.**—Headache is suggestive first of indigestion or deranged liver, or of nervousness, weakness, or overwork. Throbbing or acute pain may occur either from *anœmia* or weakness, or from fever and inflammatory affections. Dull pain is more distinctive of dyspepsia or indigestion. When headache recurs at fixed periods or in one brow, it is often due to malaria. Headache also occurs from rheumatism and gout, and sometimes as a rheumatic affection of the scalp. (*Vide* article HEADACHE, p. 196.)

6. **PALPITATION OF THE HEART.**—Palpitations are common as a symptom and effect of indigestion, also from weakness and hysteria. Palpitation also occurs from disease of the heart, but is comparatively rare from this cause.

7. **PAIN.**—There are two great distinctive pains, viz. *inflammatory* and *irritative.* Inflammatory pain is *increased* by pressure; irritative or spasmodic pain is generally *relieved* by pressure. Thus the pain of inflammation of the bowels may be distinguished from that of colic, gravel, or

gall stones; the first by being *increased*, the latter by being *relieved*, by pressure on the bowels. Whenever pain is dangerous there is generally fever. Pain of the chest may arise from cold, consumption, inflammation, rheumatism, indigestion. Pain in the joints suggests rheumatism, gout, scrofulous or other inflammation, or hysteria. Pain in the stomach or bowels indicates wind, acidity, dyspepsia, colic, or, if long continued and increased by pressure, inflammation. Pain in the back and limbs ushers in fevers and small-pox; pains all over the body mark simple cold, influenza, or dengue fever; pain in the face or other parts of the body, when periodic and without fever, is generally neuralgic.

8. **SORE THROAT.**—Sore throat occurs as a symptom of cold, quinsy, diphtheria, scarlet fever, mumps, consumption, syphilis, inflammation of the windpipe, and croup.

9. **VOMITING.**—Vomiting may be caused by unwholesome food and by intemperance. It often occurs at the onset of fevers, and especially at the commencement of eruptive fevers, as small-pox and measles. It is also a symptom of rupture or 'broken belly,' of dyspepsia, of colic, of gravel, and of cholera. It is a feature of inflammation of almost any organ within the belly, particularly of affections of the stomach; it also occurs from the violence of hooping-cough; it may be produced by poisonous agents, as arsenic; it occurs in sea-sickness, and is often very troublesome to pregnant women.

10. **FEVER.**—The condition comprehended in the term fever is characterised by heat of skin, by quick pulse, by restlessness, by headache, and by scanty high-coloured urine. Fever may occur as a simple febrile attack, apparently unconnected with any other malady, or as the effect of cold or indigestion; or fever may be the consequence and a symptom of some other malady. In the description of diseases it will be found that very many are characterised by fever as a symptom or a necessary part of their progress. Thus all

inflammations are attended with fever, which in its symptoms differs little from simple fever, occurring as the effects of cold, or of stomach derangements. Lastly, fever may occur as the result of specific poisons.

DOSES.—The principal diseases will now be treated of alphabetically; but, before doing so, it must be again mentioned, that unless the doses of medicines for children are especially stated, the doses given are those adapted for an ordinarily strong adult. Of course the younger the child may be, the smaller is the dose of medicine it requires. A table of proportionate doses for all ages, from one month to twenty-one years, is given at the commencement of Chap. I., and should be referred to when in doubt. But very frequently the quantities for children are stated in the text. It should also be recollected that generally delicate females will require smaller doses of medicines than ordinarily strong persons of the opposite sex.

At the end of Chapter III. will also be found the prescriptions which are referred to by numbers in the text, together with a few remarks on the different classes of medicines used. The number of the prescription is also again given, under the head of the principal medicine of which it is composed, so that by referring to the first chapter, containing the action of medicines, it may be judged whether the remedies given are producing the desired effect.

ABSCESS.—This term is commonly applied to a painful and inflamed swelling, which, after a certain course—in most instances very rapid and acute, in others slow and indolent—terminates in the discharge of a yellowish creamy fluid, called *pus*, or matter. Abscess may present in almost any part of the body; a gumboil, a whitlow, and the large and painful swelling sometimes formed in the female breast during suckling, are all instances of abscess. Though commonly recognised as an affection of the surface of the body, abscess may attack some important internal organ, as the brain or liver. Abscess differs from boils in not containing dead flesh, or a central hard part, commonly called the 'core.' Abscess often arises from local injury, as blows, or from thorns or other foreign bodies introduced beneath the skin; but it may originate from cold, or without any assignable cause, or be connected with scorbutic, scrofulous, syphilitic, or other morbid or debilitated conditions. In persons who have subsisted for some time on bad or insufficient food, or who are debilitated from any cause, a very slight injury, as a bruise or cut, may result in inflammation, and in the formation of matter.

In considering the symptoms of the affection it is necessary to distinguish those swellings which are much inflamed, very painful, and rapid in their course, from those which, on the other hand, grow slowly and gently, and with little, if any, redness of the skin. The symptoms of the first variety of the malady, or of an *acute inflammatory abscess*, are these: A swelling becoming in the course of two or three days, or often in a few hours, very hot, painful, and tender, the skin assuming a stretched appearance, with a bright red hue most intense at the centre. As the swelling increases, the pain becomes more severe, and has a characteristic throbbing or pulsating peculiarity. In the further course of the affection the skin and subjacent soft parts round the inflamed swelling become 'puffy,' and retain for a short time the mark made by pressure with the finger. As the centre of the abscess becomes more painful and inflamed it loses its hardness, and gradually 'ripens,' or breaks down into matter. The skin at this part becomes thinner, more prominent, and loses its bright red colour, presenting the well-known sign of 'pointing,' in the shape of a light yellow or bluish spot. The whole swelling is now soft, and by making gentle pressure, alternately with the fingers of each hand, the sensation may be generally felt of a small wave of fluid moved from side to side. The abscess finally bursts, and discharges the contained matter through one or more small apertures formed in the thinnest and most distended portion of the skin. The discharge at first is profuse, and consists of a thick yellowish fluid; as the cavity of the abscess contracts and closes, it diminishes and becomes clear and thin. During the progress of healing, the superficial layers of skin about the seat of the abscess peel off. The progress of an abscess towards ripening is usually accompanied by constitutional symptoms, proportional in severity to the size of the swelling and the amount of inflammation. These symptoms are shivering, general uneasiness, feverishness, headache, and often pains in the back and joints. Shivering particularly is regarded as indicating the commencement of the formation of matter. When abscesses form deeply below the surface of the skin, especially where the skin is hard, as on the heel; or when they form beneath tendons and ligaments, as in one form of whitlow (*vide* p. 327), the suffering is more intense, the matter longer in coming to the surface, the parts implicated more important, and professional assistance oftener required.

In the second variety of abscess the symptoms are much less severe. The swelling increases in size very slowly and with little pain or tenderness. The skin remains for a long time free from inflammation or puffiness, until the matter has collected in such quantity as to cause its distension and attenuation. There is then a slight blush or redness, and the matter is discharged through a small opening as in acute abscess. This variety is known by the name of *chronic* or 'cold' abscess.

Treatment.—When abscess occurs without any irritating cause, it will mostly depend on some morbid state of the constitution, and, if constipation is present, will require purgatives, and Recipes 1 and 2 may be taken. In abscess arising from injury, all irritating causes, as thorns or splinters, should if possible be removed, and then, if the person is in good health, the parts will usually heal without the aid of medicine. In the early stage of a painful inflamed swelling, an attempt may be made to prevent the formation of matter by applying lint, or a piece of linen wet with cold water, or with cold vinegar and water (one-third vinegar), or by using the cold lotion (Recipe 83), which is a preferable application; by keeping the affected part in perfect rest; and by prohibiting the consumption of meat, beer, or spirits. If the patient, however, has had *shivering*, or complains of *throbbing* pain about the swelling, measures calculated to further the *ripening* and *pointing* of the abscess should be adopted. Local applications in the shape of hot poultices (Recipes 78, 79, 80)—of which every variety, bread, bran, or linseed meal, may be most easily procurable—should be used, and the poultice should be changed every four or five hours, or as soon as it feels cool; or, as is sometimes more convenient for small abscesses, warm-water dressing (Recipe 85), or spongiopiline wet with hot water may be substituted. Or the water-dressing may be used during the day, and a poultice applied at night. At each change of poultice the part should be well bathed with hot water. Nourishing and easily digestible food, as soups, beef tea, eggs, and light puddings, should be allowed, a liberal diet being more especially required by feeble or debilitated persons; while in most cases a small quantity of wine or malt liquor may be given without hesitation. The possibility of a scorbutic taint in the constitution should also be recollected, and if the gums, being spongy or inclined to bleed, show evidence of scurvy, or if the person has been in a locality where fresh vegetables could not be procured, such vegetables or other anti-scorbutic remedies (*vide* SCURVY, p. 267) should be taken. If the constitution of the patient is weakened from any other cause, tonics will also be required, and quinine (Recipes 17, 18) may be used. A prolonged sojourn in a close room is to be avoided, as fresh air will assist the hot applications, the nourishing diet, and the tonics recommended above, in favouring the rapid formation and discharge of matter, and the ultimate contraction and healing of the abscess.

After a variable time, generally two or three days, matter having formed, the abscess becomes prominent or pointed, when the skin at the most prominent part should be punctured with a clean sharp lancet, and the matter evacuated. The part should never be squeezed in order to get the matter out quickly, for it is a maxim in surgery that 'To a diseased part a touch is a bruise.' Having allowed as much matter to flow as will easily escape, if it seems there is more left, put a thin strip of oiled lint into the aperture, and direct the patient to remove it in an hour's time, and with soft sponge and warm water to press away as much more matter as can be expelled without pain; afterwards poultices should be again employed until all discharge ceases.

When abscess occurs in the neck, it is important to open it early, and the puncture should be made longitudinally, not horizontally, in order to avoid a large scar. In the female breast it usually prevents much suffering to make a puncture as soon as the presence of matter is ascertained, and to avoid a scar the puncture should be made from the nipple towards the circumference, *not* across the breast. When abscesses are situated near the *anus*, the use of the lancet should not be deferred for a single hour after discovery, or the danger of a fistula resulting will be increased. (*Vide* FISTULA, page 181.)

[When treating abscess of any description, if the symptoms described under the heading ANÆMIA (page 42) are present, some preparation of iron will be required. Iron is not one of the medicines contained in the case designed to accompany this edition of the Manual, but Recipe 21 or 22 should be procured from a chemist, or, if this cannot be done, sulphate of iron (Hindustanee term *Heera-kusees*, *vide* p. 22) may be obtained from the bazaar, three grains of which may be taken in a little water three times a day.

Similarly, if there are indications of a scrofulous condition, which is more likely to be the case during the progress of chronic or 'cold' abscess, the remedies mentioned under the head SCROFULA (p. 267) should be obtained, *viz.*, cod-liver oil, and iodine with iron (Recipe 26)].

ABSCESS OF LIVER.—*Vide* LIVER DISEASE, p. 224.

ACIDITY.—Acidity of the stomach is a frequent symptom of indigestion, and is often an accompaniment of chronic rheumatism and of gout. It arises from articles of food taken being converted, from error of digestion, into acids of various kinds. It is frequently attended by headache, flatulence, tendency to vomit, and loss of appetite, and it generally causes pain either at the pit of the stomach, or behind the ribs on the left side, or higher up in the middle of the chest. The treatment consists in avoiding those articles of diet which produce acidity, as unripe fruit, cabbage, acid wines, sugar, butter, and food containing much starch, as rice, potatoes, and arrowroot; and in taking medicines which will correct acidity. Among the best of these is citrate of magnesia, which may be taken in teaspoonful doses dissolved in two or three ounces of water, to which a grain or two of quinine has been added; or forty minims of sal volatile, with a similar quantity of water and quinine. Effervescing draughts, aërated water, or draughts of simple cold water are often very beneficial. If the bowels are costive, sulphate of soda may be taken as a laxative. (Recipe 2.)

[Other antacid medicines which may be procured if the above do not relieve, are, bicarbonate of soda, bicarbonate of potash, and bicarbonate of magnesia, each of which may be taken in from twenty to thirty grain doses. When costiveness accompanies acidity, from half a drachm to a drachm of Gregory's powder (Recipe 16) often proves very efficacious. But it must be recollected that, in the great majority of cases, acidity of the stomach is a symptom of dyspepsia, and that all antacid medicines are only palliative. The great means of cure are careful dieting and moderate exercise.]

ACNE OR COPPER NOSE.—*Vide* SKIN DISEASES, p. 283.

AGUE.—*Vide* FEVER, INTERMITTENT, p. 163.

ANÆMIA.—Anæmia is an impoverished state of the blood causing a peculiar condition of debility, and mostly affecting females. The blood in its normal or healthy condition contains a large number of red globules, which may be seen under the microscope, and which give the blood its colour, and impart the natural appearance to the white skin. But in anæmia these red globules are deficient in proportion. The skin in consequence becomes very pale, and often assumes a sallow green appearance, while the eyes are encircled by a dark ring. The whites of the eyes also become pearl-coloured. The lining membrane of the eyelids and the lips, instead of being rosy, are of a pale pink colour, and the tongue loses its redness. The patient is languid and indisposed for exertion. The appetite is variable and depraved, and such substances as lime, chalk, or slate-pencil are sometimes greedily eaten. Palpitations of the heart, pain in the left side, often extending to the loins or hips, and swelling of the feet, are also very frequent symptoms. The bowels are often torpid, and the patient is generally hysterical. *Anœmia* is very frequently connected with the first appearance of the monthly discharge of females, or with disorder of that function (*vide* AMENORRHŒA), when it is often commonly called *Green Sickness.* It is also frequently seen in women who have lived badly, or who are debilitated by climate, or who, having had several children quickly, are suffering from over-nursing. (*Vide* page 560.)

In males a very similar condition is sometimes brought on by exhausting employments, particularly from night-work, or when sufficient time for rest, or refreshment and sleep, has not been allowed, or after prolonged exposure to malaria.

Treatment.—This disease most frequently arises from neglect of the common principles of hygiene, or as seen in India from malarious influences, from want of pure air and light, or from living badly. The treatment consists therefore of moderate exercise every day, and of free ventilation of the living, sleeping, or working apartments. The diet should be nourishing, and a moderate amount of animal food should be taken; but anything causing indigestion should be avoided. Stimulants should be resorted to sparingly, a small allowance of malt liquor being the most advisable. Cold or tepid bathing is often of great service, and change of air and scene is always useful. Tonic medicines, especially iron, are of great value. The red globules of the blood contain iron, and iron given as a medicine tends to increase their quantity. Sulphate of iron, called *Heera-kusees*, may be obtained of good quality in most Indian bazaars, of which three grains may be taken in a couple of ounces of water three times daily. It should be recollected that this medicine, like all preparations of iron, will colour the motions more or less black, so that this appearance need not excite alarm. Should the bowels be confined, citrate of magnesia may be used. If disorder of the monthly flow exists, the treatment recommended for *amenorrhœa* should be pursued. (*Vide* p. 330.)

[Better medicines for anæmia are, however, the iron mixtures (Recipes 22, 25): No. 25 when delayed menstruation exists; Recipe 22 when there is not this complication. Or for simple uncomplicated anæmia, iron lozenges prepared by the chemist, containing one grain of iron each, may be substituted for the iron mixture by those disliking the taste of the latter. If constipation exists, it is also desirable to use aloetic laxatives, as Recipe 13, if the motions are light in colour, or it is supposed the liver is not acting freely; Recipe 15 if there is no suspicion of inactive liver. As mentioned above, all preparations of iron colour the stools more or less black, so that dark motions cannot be always accepted as indication of the liver acting.]

ANEURISM.—*Vide* TUMOURS, p. 321.

ANGINA PECTORIS.—*Vide* HEART DISEASE, p. 204.

APHONIA.—*Vide* LOSS OF VOICE, p. 227.

APHTHÆ.—*Vide* THRUSH, p. 320.

APOPLEXY.—An attack of apoplexy depends on the sudden escape of blood beneath the skull on the surface of the brain, or on or between its investing membranes.

Or otherwise, on simply fulness and distension of the vessels of the brain, without actual rupture and escape of blood.

Or thirdly, on escape of watery fluid, the result of such congestion or fulness, into the cavities of the brain.

The disease makes its attack in one of three ways: 1st, suddenly, the patient falling down without warning, as if from a blow; 2ndly, after premonitory symptoms, consisting of headache, sickness, and faintness; 3rdly, with sudden paralysis of one side of the body, or of one leg only.

In the first form of the disease, the patient falls to the ground, foaming at the mouth, his countenance livid, the pupils of the eyes dilated, or one pupil may be dilated and the other contracted, and the mouth slightly drawn to one side. The urine and fæces are discharged involuntarily, the extremities are cold, the skin bathed in a cold sweat, and death takes place sometimes in a few minutes, with or without laborious breathing.

In the second form of the malady, the first symptoms are more like those of common fainting, with feeble pulse, sighing respiration, and cold surface.

In the third form, the paralysed limb is dragged, cannot be used freely, and the mouth is probably drawn to one side, with thick speech and confusion of ideas.

In whatever way it may commence, the fit is ultimately characterised by insensibility, accompanied by slow, noisy, and *puffing* breathing. The person is unable to swallow, or swallowing is performed with difficulty; the countenance becomes flushed, and the pupils of the eyes are contracted, or one remains dilated and the other contracted; the limbs are motionless and rigid, but sometimes convulsed, or the latter conditions present only on one side of the body. The bowels are either obstinately confined, or motions may be passed involuntarily. The urine may also be passed involuntarily, or retained till the bladder is full, when it dribbles away. The pulse becomes quick, full, and strong, and sometimes less frequent than natural.

In some cases of apoplexy the patient does not lose his senses entirely, but the organs of speech being paralysed, he expresses himself by signs.

Apoplexy is sometimes *preceded* for a considerable period by premonitory symptoms, as giddiness, headache, a sense of pressure or constriction in the head, confusion of ideas, incoherence, loss of memory, faltering speech, flushing of the face, bleeding from the nose, flashes of light, noises in the ears, double vision, numbness of the extremities, nausea, and fainty feelings. (*Vide* BRAIN HEADACHE, p. 202.)

The *predisposing* causes of apoplexy are—age, from the fiftieth to the eightieth year; sex, men being more liable to it than women; make of body, combining a short thick neck, large chest, florid complexion and stoutness; hereditary tendency, the malady often running in families; indulgence in eating and drinking; and disease of the heart. The *exciting* or *immediate* causes are—violent exercise; straining, as in lifting heavy weights, or as at stool; sudden mental emotions, and violent passions; intense heat; overloading the stomach; tight stocks round the neck.

Apoplexy requires to be distinguished from the effects of spirituous liquors, and from the results of narcotic poisons as opium, and from epilepsy.

Apoplexy is best distinguished from the effects of spirituous liquors: 1st, by the history of the case; 2ndly, by the smell of liquor in the person's breath—although it must be recollected that this is not a certain sign that the patient has been drinking, for someone may, in mistaken kindness, have given the person struck by apoplexy some kind of liquor; 3rdly, in the 'drunken fit' the size of the pupils is equal, while in apoplexy one is often contracted, and the other dilated; 4thly, the person 'dead drunk,' as it is termed, may generally be roused, when he babbles incoherently—from apoplexy the person cannot be roused; 5thly, if the patient be carefully watched, any movements which occur will be found to be restricted to one side of the body in apoplexy, while movements occur on both sides in drunkenness.

Apoplexy is to be distinguished from poisoning by opium: 1st, by the history of the case; 2ndly, by the absence or presence of the smell of opium in the breath; 3rdly, by the equal contraction of both pupils caused by opium; 4thly, in apoplexy the patient cannot be roused, while in opium poisoning he may generally be roused for a moment, although he does not then babble as in drunkenness, but lapses at once into sleep again; 5thly, in apoplexy what are called 'reflex actions' may usually be induced; that is, if the patient's foot or leg is pinched or tickled, there will be an effort made to draw the foot away: in opium poisoning such movements cannot ordinarily be induced, the patient apparently not feeling pinching or tickling.

Apoplexy is known from epilepsy by the presence of *puffing* breathing, which is absent in the latter malady. In epilepsy also there is struggling of the limbs; the eyes are turned up under the lids, so that the whites only are visible; and the person generally falls down with a loud cry, none of which are symptoms of apoplexy.

Treatment.—The first thing to be done in all cases is to loosen the patient's neckerchief and shirt collar, to *slightly* raise his head, and give free access of air. The forehead should be bathed with cold water, the feet should be put in hot water, and mustard poultices should be applied to the calves. But while this is being done, the patient should be kept in the horizontal posture, which may be effected by drawing him down towards the foot of the bed, until, the knees being bent, the legs hang over. The feet should be kept in hot water about ten minutes, after which bottles filled with hot water should be applied to them; the mustard poultices being allowed to remain on the calves for an hour. Perfect quiet should be maintained, and the blinds should be drawn down, so as not to let too much light into the room, and only one or two people should be allowed by the bedside. Bleeding, formerly the rule in such cases, should not be undertaken except under medical advice. As soon as the patient can swallow, one ounce of sulphate of soda dissolved in three ounces of water may be given as a purgative. But until the patient is able to swallow, no attempt should be made to induce him to take either medicines or anything else.

If the fit happens *immediately* after a full meal, the patient may make attempts to vomit; and if this is the case, the action of vomiting may be assisted by tickling the throat with a feather. But if there is no spontaneous attempt to vomit, emetics and all excitants of vomiting must be avoided, as the action of vomiting may increase the determination of blood to the head, and therefore do mischief. In all cases an assafœtida injection (Recipe 105) should be given as soon as possible.

After a variable time, the patient generally recovers from the apoplectic fit, but it is then found he has lost the use of the arm or the leg, or of one side of the body. The power of speech may also be lost, and the muscles of the face may be affected.

Temperate and active habits, moderation in food and drink, may save many a one from apoplexy, or at least postpone the seizure. When convalescence commences, the bowels should be regulated, and a generous or low diet must be given, according to the condition of the patient.

[In the treatment of apoplexy, it is always desirable to act upon the bowels as soon as possible, but as the patient cannot, in the majority of cases, swallow, it will be desirable to obtain from the chemists a little croton oil, of which *two or three drops* may be placed on the back of the patient's tongue with a feather. A blister should also be obtained and applied to the back of the neck. If the croton oil does not operate freely, Recipe 11, followed in three hours by Recipe 5, should be given, and the latter (a draught) should be repeated every six hours until the bowels have been freely moved. An enema (Recipe 106) should also be injected.]

ASTHMA.—Asthma signifies attacks of difficulty of breathing, occurring in paroxysms. A fit of asthma generally comes on in the night, and the seizure is often preceded by languor, flatulency, headache, heaviness over the eyes, sickness, pale urine, disturbed rest, and a sense of oppression about the heart. But it often also comes on suddenly, the patient waking from his first and deepest sleep, labouring for breath. When the fit is fully formed, there is intense difficulty of respiration, the patient sitting up in bed, or standing holding on to a table or chair, breathing hard with a whizzing noise. The face is livid and pale, and suffocation appears probable. After an hour or longer the attack subsides, accompanied by the expectoration of phlegm or mucus. Some persons are peculiarly liable to asthma, and it is occasionally a symptom of disease of the heart. Sometimes asthma occurs more especially during the hay harvest, and has been called *hay asthma*. It is then allied to the condition described under *catarrh* as *spasmodic sneezing*, and is probably due to some subtle aroma in the atmosphere.

Treatment.—Asthma is sometimes more relieved by change of climate than by any medical treatment, although it cannot be said with certainty what kind of climate will suit each individual case. Sometimes a dry, at others a moist climate, affords most relief. A very slight change, as from one street to another, or from one house to another, has been known to check the attacks. As a general rule, elevated regions, as hill stations, do not suit asthmatics, on account of the greater rarefaction of the atmosphere.

During a paroxysm of asthma the patient should be kept sitting up, and the spine may be well rubbed with soap liniment. Pressure with the thumbs on the large (axillary) arteries of the arms as they issue from the chest (*vide* p. 357) has been found to lessen the difficulty of breathing. To plethoric persons ipecacuanha wine should be given in twenty-drop doses, in an ounce of water, every two hours. For weaker persons, camphorated tincture of opium, combined with a stimulant, as ammonia (Recipe 30), is more advisable. If the attack has followed an injudicious meal, such as a late supper or dinner, a mustard emetic (Recipe 77) should be administered. If the attack has been preceded by constipation, sulphate of soda (Recipe 2) should be taken as a purgative. Sometimes a glass of hot brandy and water will relieve a fit of asthma; at other times a cup of strong coffee. Many patients are benefited by chloroform, half a drachm of which may be placed on a handkerchief, which should be held two or three inches from the nose and mouth. This may be repeated three or four times at intervals of a quarter of an hour.

Smoking stramonium leaves sometimes relieves asthma, especially if the smoking is commenced before the fit is fully formed. The *Dhatura Stramonium* plant grows in various parts of India, and especially in the Himalaya, and may be obtained in the bazaars under the native name 'Dhatura.' From ten to thirty grains of the dried leaves may be smoked in a common pipe, which will sometimes, if taken in time, prevent an expected paroxysm. Or from one to three grains of the dry leaves may be taken internally. In both cases it is desirable to commence with the smaller doses, and gradually to increase them as required.

Treatment, however, is equally important during the intervals between the fits; and it is found by experience that even more is to be done for asthmatic patients by careful dietetic management than in any other direction. However well the person may feel during the intervals between the fits, he should never exceed in diet. Breakfast should consist of an egg, or chop, or cold chicken; tea is better than coffee, and milk and water better than either. Mutton ought to be the staple diet, with green vegetables and potatoes in moderation. No pastry should be used, but stewed fruits or light pudding may be generally taken with impunity. Water, or very weak brandy and water, is the best drink, and there should be no cheese or desserts. Late dinners are to be avoided, and the asthmatic should never eat as much as he can. A person subject to asthma cannot eat and drink with the impunity of other people, and it is only by the exercise of self-denial in this respect that he will be able to live in comparative ease and comfort.

[If the above measures do not succeed, Recipes 32 and 34 may be obtained for use during the fit. *Cigars de joy* or anti-asthmatic cigarettes, both of which are composed principally of stramonium leaves, may also be procured and tried. But as with the smoking of stramonium above recommended, it is desirable that the cigars should be smoked *before* the paroxysm of asthma has fully formed, or the effect is not so powerful. In order to relieve the distressing flatulence often preceding or accompanying a fit of asthma, ten grains of alum, five of ginger, and four of powdered rhubarb may be taken with advantage. After the fit, in conjunction with a strict system of diet, as mentioned above, Recipes 14 and 6 should be used on alternate nights and mornings, for three or four days, or until the bowels are freely moved, to be followed by Recipe 70. Iodide and bromide of potassium (Recipes 45 and 46), and arsenic (Recipe 27), are also among the most approved remedies. Recently a new remedy called Jaborandi, a shrub growing in the Brazil, has been much extolled as a medicine for asthma.]

ASPHYXIA HEAT.—*Vide* SUNSTROKE, p. 301.

ATROPHY.—This term signifies wasting or withering away, and is the name generally applied to the wasting of children. In bad cases there are marked attacks of fever, as described under the head INFANTILE REMITTENT FEVER, p. 174. The child becomes thin, weak, and debilitated, and there are night perspirations. The evacuations are slimy and sour smelling, the breath is very offensive, and the urine is scanty, depositing a whitish sediment. The appetite is very capricious. The skin is extremely irritable, so that the child is constantly picking the nose, lips, corners of the eyes, or anus. The bowels are often swollen and hot, and tender to the touch.

In less severe cases fever of the remittent type is less strongly marked, although close observation will show heat of skin in the evening, perspiration in the night, and languor and debility in the morning; while the child looks pale and listless, and the appetite is lost. The glands of the neck may also become swollen. If not relieved, the abdomen or belly grows large, the glands of the bowels become diseased, constipation alternates with diarrhœa, fever becomes more apparent, and the child, instead of being plump and rosy, presents the aspect of shrivelled old age. The more the child wastes, the more restless and irritable does it become, until it dies from diarrhœa and exhaustion.

This affection may occur at any age, from one year old to puberty, and it may be complicated by the addition of consumption, by enlargement and abscess of the glands of the neck, by skin diseases, by disease of the bowels, or by water on the brain; all of which are more liable to occur when the condition of atrophy is present.

The causes of atrophy are chiefly impure air, and confinement in crowded buildings with improper food, aided frequently by the irritation caused by worms in the bowels, or from teething. There is also an atrophy of children, caused by a habit of eating dirt or lime plaster from the walls; a fact which should not be forgotten when treating such cases. Sometimes atrophy occurs, particularly in children with hereditary scrofulous taint, without the above exciting causes being prominently in operation.

Treatment.—The treatment of atrophy is rather dietetic and hygienic than medicinal. Pure air should be ensured, particularly in sleeping apartments. The nature of the food must be scrutinised, and care be taken that the patient, if an infant, is not suffering from the effects of a too exclusively farinaceous diet (*vide* REMARKS ON THE FEEDING OF CHILDREN, Chap. V.). Much of the wasting or atrophy, and accompanying dysentery, from which children in India, and particularly the children of soldiers in barracks, suffer, arises wholly or partly from want of proper food, which the parents are either unable to obtain, or regarding which, from ignorance or carelessness, they do not take sufficient care. But while attending to diet, other matters must not be neglected. Worms, if present, must be expelled (*vide* WORMS, p. 341). Diarrhœa must be treated by appropriate remedies (*vide* INFANTILE DIARRHŒA, p. 117). If the teeth are troublesome, the gums must be lanced (*vide* p. 319). Tonics, especially quinine, in doses according to the child's age (*vide* p. 17), should be given. Lastly, when the bowels are large, the abdomen should be gently rubbed daily, for some minutes, with equal parts of brandy and salad oil; or, if procurable, with soap and opium liniment.

BED SORES.—When patients, whether from disease as fevers, or from injury, have to lie long in bed, and especially when they are obliged to lie long in one position, as is necessary for several varieties of fractured bones, sores are apt to form on those parts of the body subjected to the greatest amount of pressure. Thus the back, hips, buttocks, and elbows are liable to suffer, and in all cases when the patient is likely to lie long in bed, the commencement of bed sores should be guarded against from the first. The pressure producing the sore also diminishes the sensibility of the part affected, so that the patient himself may be unaware of the formation of a sore. It is, therefore, necessary that his word should not be accepted on the point, and that examination should be frequently instituted. Want of cleanliness and moisture, especially moisture from urine or fæces, irritates the skin, and renders bed sores much more likely, and, therefore, as preventive measures, great attention must be given to these points. The parts most subjected to pressure should be twice daily bathed with a wash, composed of a drachm of alum dissolved in four ounces of water, which will tend to harden the skin. Small pads, or pillows, or air-pillows, should also be made use of to relieve the parts most exposed to pressure. Frequently a pillow of circular shape, with a hole in the centre, will be found very useful. When a bed sore is about forming, the skin becomes reddened. If the pressure is not relieved, the part assumes a dusky appearance, afterwards becoming blistered. Then a grey or blackish slough forms, with discharge of thin matter. In such a condition, a poultice made of powdered charcoal should be applied, until the slough separates, after which, water dressing (Recipe 85), or, if procurable, one part of carbolic acid to fifty parts of salad oil, should be used. No application will, however, be of service unless pressure is removed from the part by the use of pads and pillows, as above mentioned. As the condition is attended by great debility, nourishing broths, stimulants, and tonics, as quinine (Recipe 17), will be required. In all cases of bed sores the apartment must be kept well ventilated.

BERI-BERI.—Beri is the Cinghalese term for weakness, and the repetition of the word implies great weakness. The symptoms of beri-beri are stiffness of the legs and thighs, succeeded by numbness and swelling of those parts, with great difficulty in using the limbs. In the course of a few days the whole body becomes swollen, the breathing quick, and the pulse feeble. Diarrhœa and insensibility generally terminate the illness.

The causes of beri-beri are exposure to cold, to night land winds, to damp and atmospheric vicissitudes, particularly when the person is debilitated by either declared or latent scurvy, or by poor diet. Beri-beri most frequently occurs in the persons of natives living on the damp sea-coasts of Western India, or in persons long confined on board ship, or in others who, proceeding into the semi-desert districts of the Western Presidency, cannot procure the more liberal diet, and fresh vegetable material, to which they have been accustomed. Europeans very seldom suffer from the malady.

Treatment.—Medicines calculated to promote the flow of urine and to increase the action of the skin should be used. For these purposes, half a drachm of sweet spirits of nitre may be given in a little water three times a day, and eight or ten grains of Dover's powder at night. Counter-irritants, as a mustard poultice, should also be applied daily over the loins. Lime juice and fresh vegetables should form a main feature of the diet. Stimulants, as wine and brandy, will probably be required from the first, and should be freely given, to the extent of six or eight ounces of wine, and half that quantity of brandy, daily.

[Other medicines which may be procured for this affection are, Recipe 11 if the bowels are confined, and the person has not been previously in a weak state of health; Recipe 15 to relieve constipation in a weakly person. Then Recipe 72 may be substituted as preferable to the spirits of nitric ether alone as recommended above.]

BILIOUS ATTACK.—*Vide* LIVER DISEASE, p. 219.

BLADDER, INFLAMMATION OF THE.—Inflammation of the bladder may be caused by injuries, by exposure to cold, by irritation from a stone, or it may be connected with stricture, or arise from the extension of a gonorrhœal attack. When there is acute inflammation of the bladder, there is fever and pain with soreness on pressure over the bladder, or in the lower part of the belly. Pressure in the fork between the legs is also painful, where there is generally a sense of weight or burning. The urine is voided frequently and in small quantities, often with great straining, followed by aggravation of the pain. The urine also contains a mucous deposit.

Treatment.—A hot bath will generally be advisable, and fomentations (No. 81) should be applied over the lower part of the bowels. Barley water (*vide* p. 583) should be prescribed *ad libitum* as a drink, and if there are thirst and feverishness, effervescing draughts of citrate of magnesia (*vide* p. 13) should be taken. The bowels should also be opened by sulphate of soda draughts (Recipe 2), and clysters of warm water (Recipe 104) will probably be required to relieve pain. At night an opiate, as ten grains of Dover's powder, or fifteen grains of chloral, will be generally advisable; the Dover's powder being most useful when the skin is hot and dry. The patient should be kept in bed, and should be restricted to low diet, consisting principally of broths and light puddings.

BLADDER, CHRONIC INFLAMMATION OF THE.—Inflammation of the bladder sometimes subsides into a minor degree, which may be long continued, becoming, as it is then called, *chronic*. Or it may arise without the more marked symptoms referred to above. This condition mostly occurs as a result of gonorrhœa, or gravel, or in elderly persons in connection with enlargement of the *prostate gland*, a gland situated round the neck of the bladder. In chronic inflammation of the bladder the symptoms are those of the *acute* form, but in a minor degree, and there is in addition a discharge of thick ropy mucus with the urine, which smells ammoniacal. The urine is also sometimes bloody.

Treatment.—Medical aid should be obtained as soon as possible, in order to ascertain if there is stricture (*vide* p. 295), or enlarged prostate (*vide* p. 257), or stone in the bladder (*vide* p. 56), from all of which symptoms resembling those of chronic bladder inflammation may arise. In the meantime, if the symptoms are at all severe, the patient should keep himself in the recumbent posture as much as possible. Pain and irritation may be allayed by warm hip baths, or by enemas of warm water (Recipe 104). The bowels should be maintained open by mild aperients (Recipe 2). The diet should be nourishing but plain, with weak gin and water or sound sherry in small quantities.

[For chronic inflammation of the bladder, not depending on organic changes, as stricture, stone, or enlarged prostate gland, as above mentioned, Recipes 48, 49, 69 may be obtained and tried in the order named.]

BLADDER, STONE IN THE.—Stone in the bladder is the consequence of a diseased condition of the urine. It is often one of the results of gravel (*vide* GRAVEL). When stone is present there is acute pain aggravated by motion, and worse after making water. There is also frequent desire to make water, with itching and smarting at the end of the penis. This induces children to pull the foreskin continually, which becomes elongated, and often red and inflamed. There is also frequently sudden stoppage of the stream of urine, and the fluid passed is sometimes bloody. There are various kinds of stone, and the only remedy is surgical operation. Sometimes a small stone passing out of the bladder lodges in the urethra or urinary passage, requiring surgical operation also. The early symptoms of stone often resemble those of enlargement of the prostate (p. 257) or of stricture (p. 295), and instrumental examination is frequently necessary to decide the point.

BOWELS, INFLAMMATION OF THE.—Inflammation of the bowels is marked by fever and severe continuous burning pain in the belly, *increased by pressure.* The patient lies on his back in bed, with the *knees drawn up*, afraid to increase the pain by movement. There is generally costiveness, nausea or vomiting, great prostration of strength, and an anxious expression of countenance. The pulse is frequent and *wiry* to the touch, and the urine is highly coloured. In fatal cases pain increases, the bowels become swollen and *tympanitic* or drum-like, the extremities grow cold, the skin is bathed in cold perspiration, the features are sharpened, pain suddenly ceases, and the patient dies. Inflammation of the bowels must be carefully distinguished from *colic*, in which there is intermitting twisting pain *relieved* by pressure, the patient often rolling about (*vide* COLIC, p. 91).

The causes of inflammation of the bowels are various. It may arise purely from cold, as, for instance, from sleeping with the bowels exposed to a current of cold air. It may be caused by injuries or blows over the bowels, or by some substance lodged in, irritating and inflaming the bowels. In this manner it may be a sequel of colic. It also sometimes supervenes in the latter stages of dysentery, particularly to robust children affected with this complaint in an acute form. Lastly, it may occur in the course of certain fevers.

Treatment.—Mustard poultices should be applied daily or as often as can be borne over the whole of the bowels, to be followed by continued fomentations with hot water (Recipe 81). If pain and tenderness increase, and leeches are obtainable, from twenty to thirty, or one leech for each year of the patient's age up to thirty, should be applied to the most painful part, and if the patient is not weak, the bleeding from the leeches should be encouraged by fomentation. Fomentations at any period, while pain or tenderness remains, are highly desirable. Clysters of warm water and soap (Recipe 104) should be injected every day; but purgatives should *not* be administered, unless costiveness prevailed previous to the attack, when a dose of castor oil will be proper at the onset. For the relief of pain and to procure sleep, a chloral draught (Recipe 75) may be taken at night. Fluid diet *only*, as beef tea, chicken tea, and broths (*vide* p. 581), should be allowed.

[In a case of decided inflammation of the bowels or their coverings, as evidenced by the symptoms above detailed, calomel and opium pills (Recipe 43) should be procured as soon as possible, and should be given until the gums are slightly tender, or until a metallic taste is experienced in the mouth, when the medicine should be immediately stopped.]

BOWELS, OBSTRUCTION OF THE.—This affection, in which the patient is unable to pass stool, often commences as the general health will also give increased strength to the parts which naturally support and retain the bowel in its position. In all cases when much of the bowel has descended the child should not be allowed to sit up for an hour or two afterwards, but should be kept in the horizontal posture, which will admit of the parts recovering strength and elasticity to retain their natural place.

BOILS.—Boils differ from abscess by containing a *core* (*vide* ABSCESS, p. 36). They are common in India, either occurring singly, or several at one time, or in successive crops, and they frequently follow as a sequel of fevers. They may be of various sizes, from that of a pea to the bulk of an egg, or larger. Large boils most frequently occur on the limbs, on the back of the neck, in the armpit, or about the buttocks, and are often sluggish, and long before coming to a head. In some instances after pain and swelling have occurred they gradually subside without the formation of matter, and are then popularly termed 'blind boils.' Small boils frequently present on the scalp, when hundreds may sometimes be counted. The cause of these Indian boils is in most instances blood deterioration, caused by length of residence, heat, scurvy, and probably attacks of debilitating fever. In children boils often attend the process of teething. Boils sometimes attack new comers, or persons who have suddenly changed their residence from one part of India to another. For instance, after a long period spent in the Upper Provinces, change to the moister climates of the sea coasts is often followed by boils. Very large boils are termed carbuncles (*vide* p. 79).

Treatment.—In all cases of boils the condition of the general health must be attentively considered, and the patient treated accordingly. If the tongue is furred and the digestive organs out of order, aperient doses as Recipes 1 and 2; or for weakly persons, citrate of magnesia (p. 13) will be required. If there is reason to suspect scorbutic taint, evidenced by tender, spongy, or bleeding gums; or even if these signs are not recognised, if the person has been in a locality where fresh vegetables were scarce, the medicines mentioned in the small type below should be obtained, and the diet detailed under the head SCURVY (p. 269) should be employed. If syphilitic taint (evidenced probably by eruptions on the skin) is present, the medicine mentioned below should be taken. If malarious taint exists, quinine (Recipe 17) should be used. If no particular taint is evident, Recipe 3, with or without the sulphate of soda, according as the bowels are constipated or the reverse, may be taken with advantage.

Local treatment consists in poulticing, and when the matter points in pricking the most prominent part with a sharp clean lancet. Then the part should be treated as recommended under the head ABSCESS. Or if the boil is small, sluggish, and long in coming to a head, the old-fashioned remedy of yellow soap and sugar mixed in equal parts into a thick paste, and spread on wash leather, may be applied. The piece of leather should be sufficiently large to cover the whole of the boil, and should be kept in place by a bandage. Or a paste of honey and flour may be used instead. Ulcers or sores, remaining after a boil ceases to discharge matter, should be treated by water dressing No. 85, or by simple ointment No. 86.

[If when boils prevail, there is reason to suspect a scorbutic taint of the blood; while the diet should be arranged as recommended under SCURVY (p. 269), Recipe 50 should be procured and used. If a syphilitic taint is suspected, Recipe 45 will be desirable. If no particular taint is evident and boils still present, Recipe 26 should be taken as a tonic.]

Boils presenting somewhat varied characters, and occurring in different parts of India, are often spoken of as if peculiar to that part of the country; as, for example, Aden boils, Scinde boils, Gwalior boils, Delhi boils. Similarly also we hear of Baghdad and other boils. But there is, it is believed, nothing radically different in these boils from any others. What is called the Delhi boil, for instance, is not confined to the comparatively narrow area of the city of that name. Neither is it a new disease. For it has been known for many generations under the native name of Arungzebe—after the Emperor of Delhi so called, who is said to have suffered from it. A similar boil is common at Muttra, at Agra, at Moultan, and throughout the semi-desert districts of Western India. The Delhi and similar sores commence as a small pimple, and may continue in that condition for some months; then gradually increasing in size, they break on the surface, becoming unhealthy-looking ulcers or sores, which often leave disfiguring scars. The parts most frequently attacked are the elbows, fore-arms, back of the hands, ankles, legs, face, and thighs: rarely the trunk, and never the scalp.

Delhi and other similar sores have been thought due to the presence of a parasite, but the evidence is not conclusive. They are, however, always connected with blood deterioration, and are especially associated with that condition, perhaps at first latent and undetected, arising from the combined effects of scorbutic taint, of malarious influences, of exposure to long-continued heat, of residence in insanitary localities, aided sometimes by a syphilitic taint. The treatment should be decided upon after due enquiry as to which of the influences mentioned has been most powerfully in action. If a scorbutic taint is suspected, fresh vegetables and Recipe 18, will be indicated. If malarious influences are prominent, Recipe 17. If heat appears the cause of debility, removal to a hill station, or the journey home, is the desirable measure. While of course all insanitary conditions must be remedied, particular attention should be given to the water, which should be filtered and prepared for drinking, as recommended under the head WATER, Chap. IV., p. 531.

Local applications should in the first instance consist of water dressing (Recipe 85), and when it is concluded from throbbing pain, or increasing size if pain is absent, that matter is forming, poultices should be applied, of whichever variety—bran, linseed-meal, or bread—is most readily procurable (Recipes 78, 79, 80). When, after the discharge of matter, sores form, stimulating applications will generally be required, and a lotion, composed of twenty grains of sulphate of iron (the *Hera-kusees* of the bazaars) dissolved in six ounces of water, may be employed in the same manner as water is to be used in the water-dressing application (Recipe 85). When the sores become healthy and are inclined to heal, simple water dressing will be the most suitable application.

[If during the progress of so-called Delhi sore scorbutic taint is suspected, Recipe 50 should be procured. When, after the discharge of the matter, the remaining sore requires stimulating, the ointment (Recipe 93) should be obtained and used instead of the sulphate of iron lotion given above.]

BRAIN, CONGESTION OF THE.—Congestion of the brain may be the first step of inflammation as described below. It arises from similar causes and is marked by similar symptoms, *viz.*, pain of head, intolerance of light, restlessness and feverishness. Purgatives and quiet are the remedies, by the judicious use of which many cases have been prevented passing into inflammation. No injury of the head, however trivial it may seem, should be neglected, especially if followed by the slightest appearance of the symptoms above named.

BRAIN, INFLAMMATION OF THE.—This serious disorder may be the result of injuries, may occur during the progress of fevers, may be caused by exposure to heat, or may arise from excessive mental toil and anxiety.

The symptoms are high fever, great pain in the head, intolerance of light, sleeplessness, delirium of a violent character. In the second stage of the malady there is an effusion of the products of the inflammation on the surface of the brain, or in its substance or cavities. The pulse then becomes slow, the pupils become dilated, there is deep insensibility and sometimes convulsions. Death, palsy, or perfect recovery may result.

Treatment.—The head should be shaved, and a bladder of pounded ice should be applied to the forehead and scalp. Or if ice is not obtainable, cold evaporating lotions (Recipe 83), or vinegar and water should be used. The bowels should be freely acted upon daily by sulphate of soda (Recipe 2). The patient should be kept in a darkened room, and perfect silence and quiet enjoined. No stimulants should be given, and the diet should consist entirely of beef tea, broth, and milk and water. No opiate or sleeping draught should be given without medical advice. It is a disorder urgently requiring the assistance of a skilful physician.

[If the above measures are not successful, and the bowels are not freely opened, a little croton oil should be obtained from the chemist, and two drops should be given rolled up with a little gum and water into a pill or pills. If the patient is delirious and will not swallow, the oil should be placed on the back of the tongue with a feather. If after the bowels have been freely moved, the symptoms still increase and medical advice cannot be procured, calomel should be obtained and given in three-grain doses every three hours, till slight tenderness of the gums comes on.]

BRAIN, WATER ON THE.—This malady, popularly but erroneously so called (known also as *hydrocephalus*, but more correctly as *tubercular meningitis*, and sometimes termed *brain fever*), generally occurs in young children of scrofulous constitution, and is rare after seven years of age. In children thus predisposed it often follows the convalescence from eruptive diseases, as small-pox or scarlet fever, or it may be excited by hooping-cough. It depends on the formation of small tubercles on the surface of the brain, and the subsequent production of a watery effusion into the cavities of the brain. It is often preceded for some time by loss of general health, by diarrhœa, or by mild attacks of infantile remittent fever (*vide* page 174). It comes on with high fever and severe pain, causing the child to scream, and to put its hands to the head, which is often incessantly rolled from side to side. The face is flushed, the child does not sleep, the eyes squint, there is vomiting, delirium, and often convulsions. In some cases occurring in very young children, before the bones of the skull are consolidated, the head is visibly swollen. When the malady occurs in infants before the bones of the head have united, there is strong pulsation visible at the *fontanelles*, or where the bones of the head join. At a later period, or about four days after the commencement of the disease, the child becomes drowsy, the pupils of the eyes are dilated, profound insensibility ensues, the pulse becomes slow, and the child dies.

Treatment.—The sick room should be darkened, if possible, with green blinds. The air should be maintained as fresh and pure as can be, only the necessary attendants being admitted, and the utmost quiet being observed. When the child has to be moved, it should be raised in the most careful manner, without shaking. All sources of irritation must be sought for, and removed, as soon as possible. Thus, if the child is teething, and the gums are anywhere swollen and tender, they must be freely lanced (*vide* p. 319). If there is any suspicion that the mother's or nurse's milk does not agree with the child (when at the breast), the milk should be changed, and a fresh and healthy nurse whose milk is a little older than the patient should be obtained. If the bowels have not been previously loose, a purgative dose of castor oil should be given. If this does not act freely, the necessity of moving the bowels being urgent, sulphate of soda may be used every four hours (half a drachm at six months, one drachm at one year old) until the bowels are well purged.

If the child has been an ordinarily healthy child, and has not been debilitated by previous illness, one leech for each year of the child's age should be applied to the sides of the head behind the ears. But the bleeding from the leech bites should be stopped (*vide* p. 364) immediately the leeches come off. Cold applications, as powdered ice in a bladder or india-rubber bag, or this not procurable, evaporating lotions (as Recipe 83), should be constantly applied to the head, and every day a mustard poultice protected by muslin (Recipe 109) (or, if available, Rigollot's mustard paper, similarly protected, may be used) to the nape of the neck. In the latter stages, or when drowsiness or convulsions come on, it may be also desirable to put mustard poultices on the soles of the feet and calves of the legs, alternately. The diet of the child, if weaned, should at first be restricted to milk and water and bread jelly (*vide* p. 582), but as the disease advances the strength of the patient should be gradually supported, and chicken broth or panada (*vide* p. 581) may be used. Eventually a little wine and water may also be desirable. But, notwithstanding all endeavours, this malady frequently ends fatally.

[In this disease, if after the bowels have been freely moved during two days the symptoms do not subside, calomel should be procured and given as follows: For infants of from one to four or five months, a quarter of a grain; for older children of from six months to one year, half a grain; above one year, a grain every three hours, until it produces green slimy or 'chopped-spinach'-like stools, or until it excites sharp pains in the bowels, which infants express by drawing up their legs and crying, but larger children describe by words.]

True water on the brain, as above described, presents, as its most prominent symptoms, severe pain in the head causing the child to scream, flushed face, restlessness, and fever, with pulsation and prominence of the *fontanelles*, or that part of the scalp in the infant covering the yet ununited margins of the bones of the head. It is necessary to distinguish this disease from one of an opposite character, called *spurious or false hydrocephalus*, and which has the following characters: a pale cheek, a cool skin, an expression of languor, an absence of any continued febrile symptoms, and in infants a sunken or depressed, instead of a swollen and prominent, *fontanelle*. On enquiry, a child in this condition will be generally found to have suffered from some loss of blood, from long-continued diarrhœa, or from some other exhausting discharge. The treatment of this so-called *spurious* water on the brain must not be that of the true disease. It should consist of nourishing diet, an allowance of wine, warmth, some preparation of iron, and careful nursing.

True water on the brain sometimes assumes a *chronic* form, coming on slowly and insidiously, so that it can scarcely be dated from any particular time. Children indeed are sometimes born with the disease. Or the chronic form may be a result or continuance of the acute form as described above. In this variety the head often becomes an immense size, but the child may survive for months or even for years. Such cases are always accompanied by wasting, languor, drowsiness, irritability, frequent attacks of diarrhœa alternating with constipation, and often tendency to convulsions. Such cases rarely terminate favourably.

Parents often express anxiety about the large size of their children's heads, and sometimes fear the enlargement, real or supposed, may be due to water on the brain. It is therefore well to mention that the disease is not nearly so common as is popularly supposed, and that the large size of any child's head is not to be attributed to water therein, unless accompanied by other decided symptoms of the disease.

BREASTS, DISEASES OF THE.—The breasts, of women particularly, are liable to many disorders, the more common of which are connected with pregnancy and suckling, and are as below.

BREAST, INFLAMMATION OF THE.—This may occur from injury, from cold, from too sudden weaning of an infant, or from permitting the breasts to become over-distended with milk during nursing. It thus frequently follows sore nipples (*vide* p. 69), the pain from the nipple often preventing the mother allowing the child to draw off the milk as often as necessary. Sitting up in bed to suckle, and allowing the distended breast to hang down without support; exposing the breast to cold while suckling; imperfectly developed nipples, causing the child to suck or drag too forcibly; the fruitless sucking of a child at a breast containing no milk, are all fertile causes of inflammation. Inflammation of the breast is most common after a first confinement, and is accompanied by sharp shooting pains, fever, and probably shivering, with hardness, redness, and swelling in some part of the organ. This may go on to the formation of abscess in the breast, or it may often be cut short by appropriate treatment.

When inflammation of the breast, marked by the above symptoms, occurs, warm fomentations should be applied, and the breasts should be occasionally but not too frequently emptied by suckling, or drawing the nipple. This is best accomplished by the child, or, if the infant has died, by another child, or by the mouth of the nurse. Otherwise it may be effected by an instrument made and sold for the purpose. Or by cutting off the bottom of a soda-water bottle, applying the mouth of the bottle to the nipple, and then sucking the cut end, when the milk will flow into the interior. The milk should, however, only be drawn when the breast becomes hard, swollen, and painfully distended. Too much drawing promotes further secretion, and tends to aggravate the inflammation. At the same time too much distension by milk must be guarded against. The feelings of the patient are perhaps the best guide, as regards the frequency with which the breast should be emptied. During the intervals between the change of fomentations, the part may be *gently* rubbed with salad oil, or, if procurable, with soap liniment. The breast should also be well supported by a handkerchief passed over the shoulder and under the breast in the manner of a sling, so that the breast may not hang down with the full force of its own weight. Castor oil should also be given to open the bowels, and cooling medicine, as citrate of magnesia (*vide* p. 13), may be taken to lessen feverishness.

BREAST, ABSCESS OF THE.—If the inflammation as above described is not subdued, matter may form in the breast constituting the affection known as *abscess of the breast.* After feelings of feverishness, shooting pains, and shivering, the breast enlarges at one particular part with *throbbing* pain, the skin becomes red, and afterwards whitish-coloured, and prominent. If not pricked with a lancet, the surface becomes very prominent and pointed, and ultimately bursts, permitting the *pus* or matter to flow out. As soon as this prominence or pointing is perceived, the matter should be let out by lancing, cutting from the centre, or from the nipple towards the circumference, and *not* across the breast, by which an unsightly scar would result. An early use of the lancet in abscess of the breast will probably prevent much suffering, which may arise from the burrowing of matter (unable to find an exit) in the substance of the breast. Afterwards a bread poultice, or a soft towel moist with warm water, should be applied until the discharge of matter ceases, when the wound should be plastered. If the abscess is small, the child may be put to the breast with advantage. If the abscess is large, the breast should not be sucked, but the milk should be drawn off occasionally. Sometimes when abscess of the breast has been neglected the whole organ is implicated or even destroyed by the burrowing of matter throughout its texture. Then canals or *sinuses* form, which, for their cure, require free incisions, often leading to a severe surgical operation, requiring professional skill and the use of chloroform.

BREAST, SORE NIPPLES OF THE.—Excoriations and cracks about the nipples, occurring during suckling, not only cause great pain, but are not unfrequently the precursors of inflammation and abscess of the breast. All nipples are liable to crack, especially if not washed and dried after nursing, but the dark-coloured nipple is less liable to become sore than the pink one. When the nipples are simply tender, but not cracked, a bread-and-water poultice, or a little sweet oil is the best application, and care should be taken that the dress does not press upon and irritate the tender part. Some means by which the milk may be conveyed to the child without the mouth of the latter coming in contact with the nipple should also be adopted. The india-rubber teat, or cork nipple, may be used for this purpose. After suckling, the parts should be bathed with brandy and water in equal proportions, or alum water (Recipe 58) may be used, and a little salad oil should be afterwards applied. When there is a deep fissure or crack in the nipple, it should be washed with alum water *after* every time the child suckles, taking care to wash the nipple *before* the child next sucks. If the abrasion is small, collodion may be used to seal up the crack. But the best means is the use of a well-made nipple shield, or other contrivance, through which the child sucks. Women subject to this affection should, during the latter months of pregnancy, frequently wash the nipples with salt and water, or solution of alum, or they may apply every day a liniment composed of equal parts of rectified spirits of wine and olive oil. Such applications harden the nipples and prevent the liability to crack. It is also a good plan to expose the nipples to the air for two or three hours daily, which has a similar effect (*vide* DISEASES OF PREGNANCY, p. 252).

BREAST, IRRITABLE.—An irritable breast may be caused by similar influences, leading to inflammation; or from various maladies affecting the womb when the breasts become sympathetically irritable and painful. There is generally a hard and tender lump in some part of the breast. This condition is common in young girls about the period of the establishment of the monthly courses. Warm fomentations will generally relieve the pain and swelling. But the general health must be attended to, and if the monthly courses are irregular, the treatment for *Amenorrhœa* or *Dysmenorrhœa* must be employed (*vide* those disorders, p. 330).

BREAST, CANCER OF THE.—Cancer of the breast mostly occurs to females past middle life. If not removed early by the knife, it proves fatal. The more usual form of cancer commences as a small hard swelling under the skin, in which attacks of acute lancinating pain are experienced. It gradually spreads, involving the substance of the breast, and drawing down the skin of the nipple. So long as the mass can be moved, and the glands in the armpit are not swelled, there is hope of cure by excision with the knife. When it becomes an open sore the chances are less favourable. Nothing but surgical operation will eradicate the disease. Women often imagine they have cancer of the breast when the malady is not anything of the kind. Until middle life it is rare, and even then it does not occur so often as is popularly imagined.

BRIGHT'S DISEASE (*Degeneration of the Kidneys*, or *Albuminuria*).—Several forms of kidney disease are included under these names. They often originate as the after consequences, or sequelæ, of inflammation of the kidneys; and they most frequently terminate in general dropsy. In this disease the urine contains a substance secreted from the blood called *albumen*. This may be discovered by the urine containing it turning white when boiled in a test-tube, or in an iron or silver spoon. This malady requires high medical skill both in diagnosis and treatment. It is only mentioned here in order to guard against the error of persons supposing comparatively trivial ailments to be the disease, which often comes on gradually and almost imperceptibly, and may only be discovered by the condition of the urine.

BRONCHITIS.—This is the term applied to inflammation of the lining membrane of the air-passages or tubes leading to the lungs. Bronchitis is generally caused by cold, and commences with symptoms of a common cold. There is first a feeling of chilliness and aching pains in the limbs: the patient is thirsty and feverish, and there is languor, headache, loss of appetite, and restlessness. There is also a feeling of soreness behind the breast bone, and of constriction or tightness of the chest. At first there is a dry hacking cough, the breathing is oppressed and difficult, and very little phlegm is brought up; but in two or three days the cough becomes looser, and the expectoration more abundant. The expectoration during the earlier period of the malady is frothy when first coughed up, but becoming glairy, like white of egg, when allowed to remain in the receptacle. After some days the expectoration becomes thicker, and of a greenish-yellow colour, and the feeling of soreness and constriction of the chest then passes away. Throughout the attack wheezing sounds may be heard with the breathing, or may be felt when the hand is placed on the chest or back. These sounds will partly disappear after phlegm has been coughed up, but recur again with reaccumulation of mucus in the air-passages. The sounds are due to the air passing through the viscid mucus which more or less fills the bronchial tubes. Any exertion or exposure to cold air increases both the cough and difficulty of breathing. In favourable cases the disease abates about the eighth day, the difficulty of breathing subsides, the expectoration is expelled with less difficulty, and the fever declines. In unfavourable cases the expression of countenance becomes anxious, the patient makes more painful efforts to breathe, the lips become purple, and the cheeks pale and livid; delirium may ensue, and the patient, unable to cough up the tenacious mucus, dies suffocated.

Bronchitis often attacks Natives who are suffering from fever during the cold season (and especially so in the northern districts of India), rendering their cases very dangerous. But European adults are less liable to bronchitis in India.

Treatment.—An attack of bronchitis may often be cut short at the onset by a warm bath, eight or ten grains of Dover's powder taken at night, with half-drachm doses of sweet spirits of nitric ether in two ounces of water every three hours, and the encouragement of free perspiration in bed. A little prepared barley, boiled in half a pint of milk, to which is added half a wine-glassful of brandy or whisky, with nutmeg, lemon juice, and sugar, according to taste, will be found a very useful and agreeable potion, as it both allays thirst and induces perspiration. If the disease is not thus checked, the patient should be kept in bed, and be carefully guarded against cold, the temperature of the apartment being maintained day and night as *equable* as possible. A certain amount of moisture in the air is also advisable, and to effect this the steam from a kettle of boiling water may be allowed to escape into the room four or five times a day. Mustard poultices should be applied to the chest, Dover's powder in ten-grain doses should be given at night, and Recipe 31 every four hours. The patient will not care for solid food at first, so bread and milk, rice pudding, arrowroot, beef tea, and jellies may be given. In unfavourable cases, when the symptoms are as described last (*vide* p. 72), stimulants in the shape of wine or brandy will be required. Although the cough may be troublesome, and the patient may complain much of want of rest, no opiate other than the small proportion of such medicine contained in the above prescriptions should be given without medical advice; as composing or sleeping medicines may add to the congestion, and increase the danger.

In colder countries, and in old people, bronchitis often assumes a *chronic* form, when it is frequently termed 'winter cough.' People may have slight bronchial irritation during the cold season of Upper India, which passes off with the return of warmer weather. For this form of bronchitis Recipe 30 will be found beneficial: or if there is accompanying dyspepsia, Recipe 34 should be procured from the chemist.

BRONCHITIS OF CHILDREN.—The acute bronchitis of children is generally of much graver importance than when the disease attacks the adult. In cold countries, and in the northern districts of India, a considerable amount of the sickness and mortality of childhood arises from this malady. In children the mischief is more apt to spread down the bronchial tubes, even to the smallest branches, while in the adult the main branches are, as a rule, the seat of the disorder; and it is in proportion to this downward extension of the inflammation that the relative danger lies. For the more the smaller tubes are affected, the less can the blood become properly aërated, and death may take place from suffocation. The disease begins with symptoms of an ordinary cold, and for some days perhaps nothing more serious appears, or is apprehended. But by degrees there is more fever and restlessness, while the commencing implication of the bronchial tubes is denoted by short dry cough. Sometimes, again, bronchitis commences with threatenings of croup. The patient may wake in the night with harsh *brassy* cough (as described under CROUP), but instead of croup resulting, the malady passes into bronchitis. However the disease commences, with increase of fever the breathing becomes quick and wheezing, and the cough more noisy, frequent, and painful. The child feels as if the chest were stuffed, and wheezing sounds may be both heard and felt on one or both sides, when the ear or hand is placed on the chest. When the breathing is very difficult, and particularly during the paroxysms of coughing, the veins of the forehead and neck stand prominently out, and the face is flushed. The fever and cough are generally worse at night, and the child is therefore then more irritable and restless. But it will often sleep for several hours, until reaccumulation of phlegm or mucus in the chest wakens the patient, and causes a paroxysm of suffocative cough. The expectoration, if coughed up, is white and glairy. But very often the phlegm secreted by the inflamed bronchial tubes is only coughed into the mouth, when it is swallowed by the child, who cannot be made to understand the desirability of spitting the phlegm out. Often the fits of coughing cause vomiting, which sometimes much relieves the child, by clearing the throat and entrance to the windpipe, and to some extent (from the pressure exerted by the act of vomiting) the bronchial tubes also of accumulated mucus, and thus allowing easier respiration. Although the skin is feverish and warm, it remains moist from perspiration. The mouth and tongue, although warm, are also moist. There is no appetite, but always considerable thirst. If the disease grows worse, the paroxysms of cough become more frequent, until the child has no strength left to cough. Then the face becomes pale, while the lips grow livid, the nostrils dilate with each inspiration, and the breathing is more hurried and difficult. Convulsions sometimes precede a fatal termination, but generally death takes place without much suffering, the child passing gradually into a sleepy and unconscious state.

Favourable symptoms are lowering of the pulse, diminution of the heat of skin, less difficulty of breathing, cessation of wheezing, lengthened periods of sound sleep, and return of appetite.

The cause of bronchitis in children is most usually exposure to cold, and it is more common when north or north-east winds are prevalent. Bronchitis of a mild character sometimes occurs as a result of the nervous irritation caused by teething, and therefore the condition of the gums should be enquired into, and if necessary they should be lanced. Children who have recently suffered from hooping-cough, or measles, are also very liable to attacks of bronchitis.

For the distinction between bronchitis and inflammation of the lungs, *vide* the latter disease (p. 233).

Treatment.—The treatment of bronchitis in children should be commenced as soon as possible, as delay may be dangerous. When the approach of the malady is feared, the child should be kept in the house, and the temperature of the apartment should be maintained as *equable as possible* both by day and night. Recipe 31 should be given, in doses proportionate to the age of the child. A warm bath may also be used at the onset, to encourage the action of the skin. Or if the malady is not fully declared, the warm bath may be delayed until night, or when the child goes to bed. If the disease is not thus checked, the child should be put to bed, and a large hot linseed-meal poultice should be applied to the chest. This application may be renewed when it becomes cool, and the same process may be repeated for twenty-four or thirty-six hours. Occasionally a little mustard may be mixed with the linseed meal; but irritating applications, as blisters or iodine, cannot safely be used for children. If mustard is used with the linseed meal, it should be in the proportion of one-tenth part of mustard only; the required effect not being blistering, but simply a degree of warmth. If linseed-meal poultices are used as applications to the chest, great care must be taken that they are not allowed to grow too cold before removal, also that moisture does not trickle from the poultice into the bed, and that the child is not chilled during the change of applications. A linseed-meal poultice should retain its warmth for three hours, and if made of the proper consistence no moisture will ooze from it. Unless the essentials as above named can be secured, it will be better *not* to use the linseed-meal poultice, but to cover the child's chest with several layers of cotton wool. The bowels, if confined, should be acted upon by senna or castor oil. If there is much wheezing or stuffing of the chest, an emetic of ipecacuanha wine should be given, which will often relieve much discomfort. The expectorant mixture (Recipe 31) should be continued during the whole illness. At the same time the strength of the patient must be carefully supported. Milk should be given freely, and beef tea or mutton broth *offered* alternately. If there is great weakness, a small quantity of brandy or port wine will be necessary. Solid food is not to be given; neither will the child care for it, so long as there is fever. When all severe symptoms have subsided, the patient may return gradually to its usual diet, and the administration of steel wine or some other tonic will be advisable.

The great importance of an *equable* temperature, whatever that temperature may be, cannot be too much insisted upon as part of the treatment of bronchitis in children. In a cold climate the proper temperature of the sick chamber would be 65° Fahr., but in India it must generally be much higher. But however high it may be, it should be maintained *equable*, and the patient should be guarded against draughts and cold. It is also advisable to moisten the atmosphere of the room by the steam from a kettle of boiling water. Also for some time afterwards care should be taken that the patient is not exposed to cold, as he will remain for some months very susceptible to any influence affecting the chest.

BROW AGUE.—*Vide* HEADACHE, p. 199.

BUBO.—*Vide* SYPHILIS, p. 322.

BUNION.—This term is applied to a swelling, generally appearing over the joint of the great toe. It principally arises from irritation of the part from the pressure of a tight, ill-fitting shoe. When recently formed, bunions are often tender and inflamed, requiring rest, fomentations, and sometimes leeches. When old, the swelling becomes hard, with occasional periods of tenderness. Removal of all pressure is the only certain means of relief. This should be effected by cutting the boot leather away, when plaster spread on soft leather may be applied over the part as a protection. If a bunion suppurates, which it sometimes does from irritation and neglect, it must be poulticed and treated as an ordinary abscess.

BURNING OF THE FEET.—This is not a very common, although often a very troublesome affection. When present, it may simply be an uneasy sensation of warmth in the soles of the feet, or in any degree to the most painful sensation of burning, preventing sleep, and thus destroying the general health. As the disease advances, there may be distinct periods of increase and diminution of the burning pain. In some instances the part affected is moist, in others quite dry. Emaciation and debility accompany the progress of the malady. This affection is most frequently met with in Arracan, Burmah, and the Eastern settlements, and more often attacks Natives than Europeans. It sometimes occurs unconnected with any other malady, at other times it appears as a sequela of fever, bowel complaints, rheumatism, or beriberi. Its cause is unknown, some considering it due to malarious influences, others regarding it as a species of rheumatism.

Treatment.—The Natives use as a local application salt, oil of sesamum, and lime juice in equal proportions. Bathing the feet in strong brine is also efficacious. Chloral may be given at night to relieve pain, and procure sleep. Tonics, as quinine, iron, or arsenic, should also be taken. Change of climate is, however, the only certain remedy either for Europeans or Natives.

CANCER.—Cancer may occur in any part of the body, but is more common in the breasts of women, in the womb, in the testicle, in the stomach and liver, and in the skin. Cancer depends on a vitiated condition of the blood, and is often hereditary in families.

CANCER OF THE BREAST has already been noticed. *Vide* DISEASES OF THE BREAST, p. 71.

CANCER OF THE WOMB.—This variety of cancer causes much pain, and is accompanied by a badly smelling discharge, with great weakness and emaciation. It generally occurs after middle life.

CANCER OF THE LIVER.—When formed there is generally a swelling below the ribs on the right side, often accompanied by jaundice.

CANCER OF THE STOMACH.—When cancer affects the stomach it causes great pain, vomiting of bloody mucus, emaciation of the body, and a hard tumour, which may be usually felt on examination of the left side below the ribs, but rather to the front line of the body.

CANCER OF THE SKIN.—This is distinguished from other morbid swellings, ulcers, or tumours, by its persistent growth, which cannot be restrained; by its spreading to neighbouring parts; by the adjacent glands becoming affected, swollen, tender, and painful; and by the tendency to form an open and increasing sore.

Treatment.—There is no cure for cancer except removal by the knife, and such surgical means can only be had recourse to when the disease affects external parts. Cancer is only mentioned in this Manual because the brief descriptions may tend to prevent an erroneous impression of cancer being present when the real affection is something far less important.

CARBUNCLE.—A carbuncle is an exaggerated boil (*see* BOILS), most frequently situated where the tissues underlying the skin are of a dense fibrous character, as the nape of the neck. Carbuncles generally result from an impure, vitiated and debilitated condition of the blood, but their appearance at any particular part of the body may be determined by an accidental blow, injury, or sprain. Carbuncles vary in size, sometimes being as large as an orange. They are very hard, dreadfully painful, and cause the skin above to become of a dusky red colour. As the carbuncle forms, matter is discharged from several small openings. Carbuncles are commonly attended with much constitutional disturbance, such as fever, perspirations, and debility. The treatment must be both constitutional and local. The strength must be kept up by nourishing diet, port wine, quinine, and iron. The local treatment consists of hot fomentations, poultices, and at the proper period free incision, in order to let the *core* or decayed tissue and matter escape. When the discharge ceases, the part may be dressed with simple dressing or plaster, as an ordinary sore.

CATARACT.—*Vide* DISEASES OF THE EYE, p. 150.

CATARRH.—Catarrh presents itself under two forms, *viz.*, a common cold, and influenza (*vide* INFLUENZA, p. 214).

The symptoms of a common cold are a sense of heaviness in the head and eyes, which are weak and watery. There is generally a feeling of oppression at the chest, and often some degree of cough and bronchitis. There is also feverishness, stoppage of the nose, and respiration is impeded from inability to breathe through the nose.

Treatment.—In order to escape colds, persons should as much as possible avoid sudden transitions of temperature. When over-heated they should not endeavour to cool themselves too quickly by throwing off clothing, or suddenly sitting still in comparatively cold situations, but cease exercise gradually, and avoid currents of cold air, although grateful to the feelings. Colds may sometimes be taken by passing from a cold atmosphere into a heated one, but such transition is not so apt to occur in India as in colder climates. The remedies for a common cold are the feet in hot mustard and water, ten grains of Dover's powder (compound ipecacuanha powder) at night, and half a drachm of the sweet spirits of nitre in an ounce of water three or four times a day. If the cold be attended with troublesome cough or bronchial irritation, Recipe 31 should be taken.

Colds, although generally regarded as trivial ailments, should not be neglected, as certain intractable diseases have their origin in, or at least may be excited by, a succession of colds. Delicate persons who are subject to colds should endeavour to strengthen their system by regimen and judicious exposure to the external air. Strong persons subject to colds may prevent such attacks by care, exercise, the free use of the bath, and the flesh brush.

Excepting in the cold season of the more northerly parts of India, mild attacks of intermittent fever appear often to take the place of colds; but for the times and localities indicated, the above remarks will be found appropriate.

It sometimes occurs that, at certain seasons, persons are affected with fits of *spasmodic sneezing*. This may depend on some vegetable atoms, as from hay, floating in the atmosphere, when change of locality will effect a cure; or, if this cannot be accomplished, the person may use snuff occasionally, and take Recipe 29; or two drachms of a solution of quinine (two grains in one ounce of water) may be injected twice daily into the nostrils. A mixture of quinine one grain, with starch three grains, used as snuff, is also sometimes very beneficial.

CHANGE OF LIFE.—*Vide* WOMB DISEASE, p. 340.

CHAPS.—Chaps and roughness of the skin of the hands chiefly occur from the cold of Northern India, which is sometimes intense, particularly during the nights of the winter season. When the skin cracks over the knuckles or elsewhere, the part is popularly said to be 'chapped.' Protection from the cold winds should be secured by gloves, and cold cream or glycerine may be applied.

CHILBLAINS.—Chilblains are seldom seen in India except in the cold weather of the northern districts, when they not unfrequently occur to children. Chilblain is the term commonly applied to slight inflammation of the skin over the toes, or on some portion of the feet, but they may occur on the hands or ears: they are caused by sudden alternations of temperature, such as warming the feet and hands when cold and damp by the fire. The skin becomes red in patches, slightly swelled, and there is much irritation and itching. Sometimes, owing generally to scratching, the parts blister or even become a sore. Chilblains are most common in delicate women and weakly children, or in persons whose circulation is very languid.

Treatment.—On the approach of the cold weather, those liable to chilblains should endeavour to harden the skin of the feet, which should be rubbed with alum solution (Recipe 58) or with strong brine. The socks should be thick, and the boots furnished with strong soles. Sudden exposure to cold or wet should be avoided, and the temptation of bringing a benumbed hand or foot close to the fire should be overcome. When there is a red blush on the skin, and the part is painful, it may be gently rubbed night and morning with brandy and salad oil mixed in equal proportions, or with soap liniment if available. If there are vesications or blisters, care must be taken not to break them, and the liniment must be applied lightly with a feather; if ulcers or sores form, poultices will probably be required, to be followed by simple dressing (Recipe 86). When persons suffer badly from chilblains, tonics and generous diet will generally be indicated; also a moderate degree of exercise sufficient to circulate the blood.

[For chilblains in the unbroken state, either spirits of wine or spirits of camphor (*vide* p. 22) may be used with great advantage, instead of the brine or alum solution mentioned above.]

CHICKEN POX.—Chicken pox is a contagious eruptive fever of a mild nature, generally occurring in children. It is by some considered to be *modified small-pox* (*vide* MODIFIED SMALL-POX). During twenty-four hours there is slight fever, then an eruption of red pimples appears first on the back, then on the face and other parts of the body, accompanied by slight itching. On the third day the pimples become vesicular, that is, they contain a little watery fluid; these vesicles break on the fourth day, disappearing about the sixth day, when the thin scab falls off, without leaving any mark or scar. The vesicles are not 'pitted' or depressed as in small-pox, neither does matter form in them as in the latter malady, and the initiatory and accompanying fever is always much slighter. A gentle aperient, as citrate of magnesia, and care in avoiding catching cold, form all the treatment desirable in most cases.

CHOLERA.—Cholera commences in two ways: 1st. *Suddenly.* 2nd. *After 'malaise' and painless diarrhœa.* The seizure often occurs during the night, and there is frequently from the very first great depression and debility. Spasmodic griping in the bowels is generally felt, followed by watery purging and vomiting. These coloured evacuations, however, quickly change to an almost odourless *white-coloured* fluid discharge, resembling water in which rice has been boiled. At the same time severe cramps, commencing in the fingers and toes, rapidly extend to the calves, thighs, and muscles over the bowels. There is great thirst and a feeling of burning heat in the stomach; the urine is scanty, and ultimately none is passed. As the disease advances the eyes become sunken and surrounded by a dark circle, the features are pinched or sharpened, and the extremities cold. Blueness of the surface, cold perspiration, the skin of the fingers wrinkled like that of a washerwoman, thready or imperceptible pulse, suppressed urine, difficult breathing, husky voice, sickly odour, cold breath, and tossing about the bed are symptoms denoting a fatal issue. The duration of the disease may be from several hours to several days.

Favourable symptoms are the cessation of the burning in the stomach, and of vomiting and purging, return of colour to the evacuations, the passage of urine, the voice becoming less husky and stronger, and the pulse recovering force and power.

It should be noted that in some epidemics of cholera the usual cramps have been absent, or much less felt than in the ordinary type of the disease. Also that more persons stricken with cholera die at the commencement or the middle period of an epidemic, than towards the termination of the epidemic.

Causes.—The precise cause of cholera is not known, but it is generally admitted to be an invisible poison, which may be transmitted from adjacent places through the air; which may be conveyed from place to place by human beings, or by other agencies; and which may contaminate drinking water or food, and may thus be taken into the system. The cholera poison is supposed to have originated in Eastern tropical countries, where, especially in the Delta of Bengal, it is periodically reproduced, spreading thence to an indefinite extent. Be this, however, as it may, and in whatever manner the poison is produced, experience has demonstrated that whatever tends to lower the vital powers will predispose to the disease. Such agencies for instance as the depression of the nervous system, following intoxication; long and fatiguing marches, and the exhaustion consequent thereon; sleeping in overcrowded barracks or other crowded apartments, damp, filth, destitution, drought and famine. In every epidemic it is always found that the disease is more fatal in those localities most notorious for their insanitary conditions—particularly as regards defective conservancy—and amongst those classes who are rendered feeble and debilitated from want or destitution.

Treatment.—Nearly all medicines have been given for cholera, but no certain cure has been discovered. Yet many lives are saved by careful nursing, and by assisting nature's efforts towards reaction by the judicious administration of remedies. It is in the premonitory stage, or that of diarrhœa, that most good may be done. When cholera threatens or is prevailing, the slightest approach to diarrhœa should be at once attended to, otherwise it will probably run on into cholera; and all saline purgatives should at such a time be avoided.

Immediately on the first symptoms of diarrhœa the patient should take thirty drops of chlorodyne, with half a wine glass of brandy in a similar quantity of water, repeating the dose every two or three hours if necessary. Or he may take Recipe No. 66, which is a very good remedy at such times. If purging still continues after three doses of either of the above, give ten grains of Dover's powder every three hours; if there is much nausea or vomiting, a mustard poultice should be applied over the pit of the stomach; and to induce the flow of urine, one drachm of sweet spirits of nitre, in two ounces of water, should be given every three hours, but not at the same time with the Dover's powder. The patient should be kept in the recumbent posture as quiet as possible, and until purging has stopped, the diet should consist of toast and tea, arrowroot or sago, mutton or chicken broth, with a little good port wine; all solid food should be avoided. The thirst may be quenched by plain cold or iced water, or soda water, and ice, if available, may be kept constantly in the mouth.

This treatment, if commenced early, will often prove successful; but if purging and vomiting continue, the patient becomes as described in the latter stage of the disease, falling into a state of *collapse.* The period for any medicine (as chlorodyne) containing opiates has now passed, but every effort must be still made to support the system and to maintain animal heat. In collapse it is useless giving medicines, as the stomach cannot absorb them. They may accumulate and become the cause of much mischief by aggravating reactionary fever. *The great desideratum in collapse is to keep up animal heat in every way which will not* *fatigue the patient.* Above all he must be kept quiet, and *not allowed to assume the erect posture.* Thirst may be checked by a table-spoonful of brandy or a little champagne *in a tumbler of water.* No other stimulant should be given, but broth or Liebig's meat soup (Recipe 28) may be *offered* frequently. If the breathing is difficult, a mustard poultice may be applied to the chest.

Cramps and cold are best relieved by friction with the hand, by the application of hot bran bags, or of cloths saturated with warm turpentine, or by mustard poultices.

The sudden cessation of vomiting when collapse is present must always be regarded as an unfavourable sign. The pulse may not be perceptible at the wrist, the surface may be cold, and the voice reduced to a whisper; but while the patient has strength to vomit, the case is not hopeless. In such instances there is generally much thirst, and pure cold water may be given *ad libitum.* Filling the stomach with water not only tends to induce the action of vomiting, but also renders the process more easy.

Similarly, so long as urine is passed, the case should not be regarded as hopeless, and with the view of encouraging this secretion some practitioners apply mustard poultices and other irritants over the loins, giving strong medicines, as below, to act on the kidneys. These measures should be always adopted when cessation of the passage of urine is an early and marked symptom.

[Instead of the sweet spirits of nitre mentioned above, it will be better if possible to procure and give Recipe 74, which is a much stronger diuretic. This will be the more important, if the case is one of those in which the stoppage of the secretion and passage of urine occurs early.]

Secondary Fever of Cholera.—When reaction or recovery from the collapsed state has fairly commenced, known by the return of the voice, the passage of urine, the return of colour to the stools, the stronger pulse, and calm sleep, little treatment beyond nourishing diet is required in ordinary cases. It sometimes happens, however, and more especially with Europeans, or when much stimulants have been given, that *reactionary fever* succeeds recovery from cholera. For the first few hours after the feverishness commences the tongue is white, but it quickly becomes brown and dry, while black particles form on the teeth; the eyes become red, the cheeks flushed, the pulse rapid, and the surface of the body hot. The patient now often grows delirious, with symptoms of congestion of the brain, and ultimately becomes insensible as if suffering from the last stage of typhoid fever. This struggle usually lasts from four to eight days, when the symptoms gradually yield or death ensues.

Treatment.—In the stage of reaction the heat of skin may be moderated by cold sponging, and the secretion of urine, if not plentiful, may be promoted by a mustard poultice over the loins, or by dry cupping (*vide* p. 501), and by diuretics, as the sweet spirits of nitre (or, if obtainable, by the Recipe 74 referred to in the small type above). If there is vomiting, as most frequently happens to patients of intemperate habits, small doses of citrate of magnesia should be given; if this does not relieve the vomiting, two or three drops of chloroform in a wine glass of water may be tried; if sickness prevents food and medicine being retained, frequently repeated injections of meat broth or of Liebig's raw meat soup (Recipe 28) should be administered. When the tongue becomes brown and dry, the pulse weaker although not slower, and if delirium occurs, a table-spoonful of port wine should be given every hour. Iced water may be given *ad libitum* at any time according to the patient's desire. Supporting the strength of the patient by strong broths and soups given frequently, but in very small quantities, as a tea-spoonful, or, if so much can be borne, a table-spoonful at a time, is perhaps more important in this peculiar condition occurring after cholera than purely medical treatment.

CHOLERA IN INFANTS OR CHILDREN presents the same symptoms as when occurring to older persons. There are the vomiting and purging of material resembling rice water, coldness of legs and feet, feeble pulse, paleness or leaden-blue colour of the face, sunken appearance of the eyes, great weakness, absence of urine, restlessness, and thirst.

Treatment.—In the first instance chlorodyne may be given in doses corresponding with the age of the child (*vide* p. 9). Equal parts of milk and lime water (Recipe 41) may be given as a drink, and which will also tend to moderate the irritability of the stomach and to stop the purging. When the pulse is feeble and exhaustion great, Recipe 66 may be given, in doses according to age; and a little port wine may be used. In some cases very strong infusion of green tea, given in tea-spoonful doses with six or eight drops of aromatic spirits of ammonia, has proved of great benefit. The tea often acts energetically on the state of drowsiness, and causes the little patients to revive rapidly, while the ammonia not only stimulates, but also acts as an antacid. In all cases at an early stage a mustard poultice guarded by muslin (Recipe 109) should be applied over the bowels, while the extremities should be frequently rubbed with brandy and salad oil in equal proportions, or with soap liniment if obtainable.

PREVENTION OF CHOLERA.—Many preventive measures may be comprised in one word, CLEANLINESS; and especially as regards the matter of *conservancy*. It is generally believed that the materials discharged from the stomach and bowels of cholera patients contain the germs or infectious principle of the disease. It is therefore necessary that such discharges should be first disinfected by the admixture of a solution of sulphate of iron, the *Heera-kusees* of the bazaars, or with disinfecting powder, or by carbolic acid (*vide* p. 502), immediately after they are passed. This disinfection is accomplished by pouring a few ounces of the agents named into the vessels receiving the discharges of the patients. The mixture should then be buried in the ground, at some distance from any tank or well; otherwise it may, by percolation through the earth, infect the water, and, through the medium of that fluid, those who drink it. Bedding, clothes, towels, tents, and articles saturated with cholera discharges may become a ready medium of infection if not purified or destroyed. If possible they should be burnt; or they should be soaked in a solution of carbolic acid (in the proportion of fifty parts of water to one of acid), then they should be boiled for half an hour in water, afterwards thoroughly washed with soap, and exposed for days to the air. The utmost care should be taken that the hands of attendants on cholera patients are scrupulously cleansed by means of soap, sand, and water in which some disinfectant, as carbolic acid, has been placed. Similarly latrines or urinals used by cholera patients must be cleansed and disinfected before being again brought into general use. The neighbourhood of villages or other localities in which the disease prevails should be avoided as encamping grounds, or if necessity compels a stay near such places, tents should be so pitched as to let the wind blow from the tents to the village, instead of the reverse. As little communication as possible should be allowed between the camp and the village people. Rooms and if possible houses in which cholera has occurred should be vacated, fumigated with burning sulphur, and the colour or whitewash should be scraped off the walls and totally renewed. Similarly earthen floors should be dug up and renewed. If possible, persons should leave infected localities marching against the wind. On the approach of cholera, increased sanitary vigilance in the vicinity should be enforced; but *after* the disease has appeared, probably more harm than good will be done by opening up foul drains, or cesspools; but sulphur should be burnt in the locality. Lastly, what may be regarded as *personal hygiene*, in contradistinction to *general sanitation*, must be attended to.

Fear of the disease, as predisposing greatly to attacks of cholera, must be guarded against. The incautious use of unripe fruit, exposure to the midday sun, or to cold night dews, great fatigue, the use of badly-cooked vegetables, and intemperance, all exercise a debilitating effect on the system, or excite irritation in the intestines, and thus render any person a more easy prey to the malady.

When cholera prevails in a native village, and it may be desirable to send medicines for distribution, or for entrusting to native servants or others, for general use during seasons of cholera epidemic, nothing is a better compound than assafœtida and opium pills. These are composed of one and a half grain of assafœtida, one grain of red pepper, and half a grain of powdered opium or extract of opium, and directions should be given for one pill to be taken by the patient after every loose stool. In the absence of medical aid, or in the absence of any one able to consult a book, these pills will often prove useful in checking the malady, if taken at the commencement of the illness.

CLUB FOOT.—This affection, in which the heel is drawn *upwards* or the foot is turned *inwards*, or both conditions present, is commonly a congenital malady, the child being so born. Such cases generally require a surgical operation. But club foot may come on after birth, when a child has weak ankles. In the natural healthy condition, the weight of the body rests principally on the heel and ball of the foot, the two forming the extremities of what is called the 'plantar arch.' By this means a degree of elasticity is given to the foot, and consequently to the step or gait, which would be altogether wanting if the 'plantar arch' were not there, or if the parts entering into its structure were joined in one mass of bone instead of consisting of small bones jointed together accurately with ligamentous substance. When, however, children are allowed to walk too soon, particularly if fat and heavy, the *astragalus* or upper bone of the plantar arch sinks down, causing a lowering of the arch and a flattening of the sole of the foot. This defect, when slight, is known as WEAK ANKLE; when more decided, it is called FLAT FOOT. In bad cases the bone or top of the arch may descend so much as to render the *inner* side of the foot *convex* where it should be naturally concave. Or in still worse instances, the deformity may increase until one or other form of club foot is present.

Treatment.—If the deformity from weak ankles becomes great, the only remedies are peculiar supports constructed by a surgical instrument maker. Therefore the affection requires skilled advice. But it frequently happens that children show a tendency to weak ankles, which as they grow older disappears. No child having such tendency should be encouraged to walk early. The ankles and feet should be frequently bathed with strong salt and water, and boots should not be worn; the pressure of the top of the boot round the ligaments of the ankle tending to injury, wasting, and weakness of the part, instead of proving, as is popularly supposed, a support.

COLIC.—This term is commonly given to all severe griping pains in the bowels, not primarily depending on inflammation. It is variously denominated from its different causes and circumstances. When its principal symptoms are sharp and spasmodic pains, it is called *Spasmodic Colic*; and when with the pain there is vomiting, it is called *Bilious Colic*; if flatulency causes the pain, that is, if there be temporary distension, relieved by the discharge of flatus or wind, it takes the name of *Flatulent or Windy Colic*; when it is caused by indigestible food, it is called *Accidental Colic*; when accompanied by heat and tenderness in the bowels, it is designated *Inflammatory Colic*; lastly, when colic is attended with obstinate costiveness and evacuation of fæcal matter by the mouth, it is called *Iliac Passion*.

Colic usually comes on suddenly, often in the night, with griping and twisting pain in the bowels, and generally there is tendency to retraction of the muscles about the navel, which part appears drawn inwards. Colic, excepting in the last two forms, is relieved by pressure on the bowels, the patient often rolling about or lying on the belly. This distinguishes the malady from inflammation of the bowels, in which state pressure is very painful, and the patient lies on the back, and remains still, with his legs drawn up. There is ordinarily no feverishness with colic, while inflammation is attended with much fever. The inflammatory colic mentioned above and the iliac passion or obstruction of the bowels are often sequels of the other varieties of colic, which, unrelieved by medicines, may pass into the inflammatory stage, or the obstructed condition.

Colic should be further distinguished from a fit of the gravel; from the beginning of dysentery; from the blind piles; and from a stone passing through the gall duct. During a fit of the gravel, the testicle is often retracted and the leg benumbed with pain shooting down the inside of the thigh; there is also pain in the loins, and frequent desire to make water. The griping pains felt at the beginning of dysentery are not so violent as those of colic, are less 'twisting' or 'wringing' in their character, and are attended with diarrhœa instead of constipation. The pain from blind piles is confined to the lower bowel, and there is probably bleeding. The pain from a stone in the gall duct is felt in the pit of the stomach, shooting through the body to the back.

Treatment.—The treatment of colic should be conducted after a consideration of the cause exciting the malady. If it appears to be an accidental colic, that is arising from indigestible food, as salted meats, pork, salmon, rich gravies, and what is called 'high' game, an emetic, as Recipe 77, will generally remove the offending matter, and so relieve the pain. To assist the action of the emetic, the patient should take copious draughts of lukewarm water, after which a mild aperient, as Recipe 2, may be taken.

If the colic is of a bilious nature, that is, accompanied with nausea and violent vomiting of bilious material with constipation in the first instance, succeeded by desire to go to stool, the malady has probably arisen from a prolonged course of high living. The remedies are purgatives, as Recipe 1, followed in a couple of hours by Recipe 2. If there is great retching, but nothing vomited, a mustard and water emetic (Recipe 77) will be desirable.

If the colic is of the flatulent, or windy, or spasmodic variety, arising probably in nervous or delicate persons from unripe fruit, from eating too much vegetable matter (as cabbage or spinach), or from the habit of drinking too much tea, alkaline carminative draughts, as Recipe 67, or forty drops of sal volatile in an ounce of water, will be desirable. A full dose of tincture of ginger is a safe and popular remedy. Effervescing draughts of citrate of magnesia (p. 13) may also be given every two hours. If these measures do not succeed, fifteen or twenty grains of chloral should be used. The griping pain in the belly, often experienced on first going out in the early morning cold in India, is a variety of spasmodic colic, but rarely requires medical treatment.

During any variety of colic the pain in the bowels may be much relieved by pressure with the hands, by hot fomentations, by friction with soap liniment, or by a mustard poultice. Also in any variety of colic, if pain is very violent, fifteen or twenty grains of chloral may be given for the relief of the pain in addition to the other measures indicated.

If, *after* an attack of either of the above varieties of colic, pain or uneasiness in the bowels remains, a dose of fifteen grains of chloral will generally afford relief.

[At the commencement of an attack of colic, especially of the bilious variety, if the bowels are obstinately confined, it will be desirable, if possible, to obtain a stronger purgative dose combined with an opiate. This may consist of five grains of calomel mixed with one grain of extract of opium, to be followed, in three hours' time, by a draught composed of one ounce of sulphate of soda and thirty minims of strong tincture of ginger in two ounces of water. In the flatulent or spasmodic variety, if the medicines as above mentioned (in the large type) fail in affording relief, Recipes 6 and 16 may be obtained.]

INFLAMMATORY COLIC.—This, as mentioned above, is generally a sequel of the other varieties. Instead of the patient finding relief from the remedies, and pain being still *relieved* by pressure, the bowels may not have acted copiously, and the belly, especially on the right side, may become tender, with some degree of general feverishness. In some cases a lump or hardness may be felt in the bowels where the parts are most tender. When colic assumes this inflammatory type, no more purgative medicines should be given, and the case should be treated as one of INFLAMMATION OF THE BOWELS (*vide* p. 56).

ILIAC PASSION, OR OBSTRUCTION OF THE BOWELS.—When colic runs into this condition, purgatives must be avoided, and the case treated as OBSTRUCTION OF THE BOWELS (*vide* p. 57).

Caution.—Whenever called upon to treat a case of colic, enquiry should be made as to the existence of a rupture, the symptoms of the latter often at first resembling colic (*vide* RUPTURE, p. 438).

CONSTIPATION.—A tendency to confined bowels is natural to many persons. It should, however, be recollected that the proper stimulus to the periodical action of the bowels is food perfectly digested. Instead, therefore, of constantly resorting to purgative medicines to remove constipation, it is better to accomplish the object by care in not eating hurriedly, so that the food may be well masticated, and by some change of diet. A glass of cold water taken every morning on rising, brown bread eaten instead of white, the avoidance of pastry, regular exercise, and regular visits at a stated time to the water-closet, will generally be successful. Figs, prunes, and stewed fruit are valuable auxiliaries. Such measures may be assisted at first by castor oil or senna, or Recipes 1 and 2, which are good ordinary aperient doses. A furred tongue, loss of spirits and appetite, attend confirmed constipation. It is also often one of the causes of piles. The first tendency to constipation should therefore be guarded against, lest it become habitual. And this is more likely to occur in India than in temperate climates. The bowels, particularly the large intestines, partaking in the general debility and want of tone resulting from lengthened residence in the tropics, become eventually less able to expel their contents, which leads, not only to occasional constipation, but also to accumulation of fæcal matter in the gut. The tongue in such circumstances is furred, the breath fœtid, the complexion sallow, and sometimes jaundiced. There are occasional attacks of colicky pain, and piles are very generally present. For such a condition occasional doses of castor oil, or sulphate of soda (Recipe 2)—sometimes one suiting best, sometimes the other—are among the most desirable medicines. Then a regimen, as noted above, should be adopted, while in many cases, instead of repetition of medicine, the periodical use of an enema syringe will prove the better course. This is particularly the case when the constipation results from accumulation of fæces in the lower gut close to the fundament, known by the stools consisting of round, hard, black masses or balls, for the expulsion of which medicines are not well adapted.

[Other medicines useful for occasional constipation occurring to ordinarily strong and healthy people, will be found in Recipes 9 and 10. For weakly people, and when there is suspicion of accumulation of fæcal matter in the lower bowel, Recipes 13 or 15 will be more suitable, provided piles are not present. If present, Recipe 12.]

CONSTIPATION OF CHILDREN.—Children, and especially infants, often suffer from constipated bowels, and particularly so in India. In such a condition the stools made are scanty, hard, frequently white in colour, and passed with straining. This state may be associated with other evident disorders, as colicky pains, teething, fœtid breath, acidity, inaction of the liver, worms, or indigestion of the food. At other times there is simply constipation, the child being otherwise apparently quite well, or the only indication of ill health may be uneasy sleep and fretfulness. But the condition should never be neglected, as fever and convulsions are sometimes caused in children by accumulation of fæcal matter in the bowels. As a general rule, the constipation of infants and children is best treated by some change in the food given; or if the infant is being suckled, by some change in the food of the nursing woman. Or a dose of castor oil may be given to the latter, which will often be followed by some diminution of the infant's costiveness. Or a little cow's or goat's milk, prepared according to the remarks on the 'Feeding of Children,' in Chap. V., may be given to the infant. Or if the child is being fed by hand, a change from cow's to goat's milk, or *vice versâ*, may be tried. When it is necessary to administer opening medicines to infants or young children, the choice lies between magnesia, rhubarb, castor oil, and senna. If there is costiveness with flatulence, fœtid breath, and acidity, citrate of magnesia may be given in doses according to the age of the child (*vide* p. 13). This is a good laxative medicine for a child, having little taste, and it may be rendered still more palatable by a small proportion of sugar and water. If the child is old enough to drink the draught off immediately, the addition of three or four grains of carbonate of soda increases effervescence, and also efficacy as an antacid. If there is inaction of the liver and white or clay-coloured stools, senna may be used in the manner mentioned in Chap. I. p. 26. If there is no evident deviation from health attending the constipated state as described above, castor oil may be used. The unpleasant taste of this oil may be much disguised by flavouring with peppermint water, or by administering it with a small quantity of milk. The administration of a small quantity of treacle with the morning and evening meal sometimes answers admirably. The insertion of a pawn stalk, or a pill made of glycerine soap into the fundament, may be employed for infants. Or a piece of soap may be pared to the thickness of a quill, dipped in salad oil, and introduced into the anus. This will frequently be followed by a free, easy stool. The application, by rubbing over the bowels, of cod-liver oil, or of cocoa-nut oil, the friction being principally made from above downwards, is also often very efficacious. Lavements or injections are sometimes used; but it is well to avoid these means if possible, although they are excellent remedies in cases of great debility with constipation. Warm water is perhaps the best injection. Two drachms may be injected, if the patient is an infant. From one year to five years, one to three ounces is the proper quantity; from ten to fifteen years, four ounces to six ounces. The method of administering an injection to an infant demands particular notice, in order to prevent injury. The infant should be placed on the left side, with the knees drawn up. A gum-elastic pipe smeared with oil should be gently passed for an inch, with an inclination towards the left side, and the fluid should be propelled very gently from the receptacle. An india-rubber bottle, furnished with a gum-elastic pipe screwing on to the mouth, is the best kind of apparatus.

The frequent use of purgatives or of the enema syringe is, however, deprecated. The former weaken and disorder the stomach when often and habitually given, while the latter, by persistent use, impairs the muscular tone of the rectum or lower gut. As above mentioned, the constipation of children should, if possible, be overcome by change of dieting.

[When for children of two years of age and upwards the above-mentioned remedies do not prove satisfactory, it will be well to obtain and use Recipe 16, known as 'Gregory's powder;' or thirty grains of rhubarb powder, two scruples of bicarbonate of magnesia, and two ounces of peppermint water should be made into a mixture, of which a child two or three years old may take a tea-spoonful every four hours. Or purgative biscuits may be procured or made. They may be made of one ounce of flour, one ounce of sugar, and one drachm of jalap powder. This should be baked into three biscuits; a quarter of one biscuit will contain five grains of jalap, and is a suitable dose for a child of five or six years old. Castor-oil biscuits are made of a quarter of a pound of flour, two drachms of sugar, and one ounce and a half of castor oil. This should be baked in twelve cakes, each of which will contain one drachm of oil, and may be used for children three or four years old. For younger children and infants, a mixture composed of six drachms of castor oil, of yolk of egg, and peppermint or aniseed water, of each two ounces, and of white sugar two drachms, is a very good combination. To an infant six months old a tea-spoonful may be given; at one year old a tea-spoonful and a half; at two years old, a dessert-spoonful.]

CONSUMPTION.—This disease, as met with in Europe, is less known under the brighter sun and in the warmer atmosphere of many parts of India. But in some districts, as in the Punjaub, in Calcutta, and in Bombay, it is frequently seen among Natives. Other forms of scrofula are also common enough over the whole of the peninsula, particularly among the Natives. Consumption, however, according to the writer's experience, does not attack Europeans so frequently as in colder climates, and if not too far advanced, it may be arrested by the warmer climate of the tropics. A short description of consumption is considered advisable, in order that it may be known when a person has *not* the symptoms of the malady. For individuals both in India and Europe are often said to be consumptive, or 'in a decline,' when there is nothing of the kind present.

Consumption consists in the decay of the tissues of the lungs, arising from the deposit in their texture of a material derived from the blood technically called 'tubercle.' The first symptom noticed is short dry cough, most troublesome on rising in the morning. The patient is easily fatigued, flushes on slight exertion, and experiences difficulty in ascending heights or stairs. Then expectoration of mucus occurs, and probably spitting of blood. The pulse is also quicker than natural, and there is generally a sensible increase of temperature towards evening. This condition may persist for weeks or months, even sometimes for years. Many persons, indeed, coming to India in this condition, which may be considered the first stage of consumption, are prevented growing worse by the change of climate, but suffer as above either continually or periodically—their complaint being often considered by themselves and friends due to weakness or febrile influences.

In the second stage of the disease the cough grows worse, the expectoration more profuse, and becomes of a yellow colour, formed in globular masses which float in water, and are sometimes streaked with blood. *Hectic*, or night fever, occurs, followed by profuse night sweats; and although the appetite may continue good, flesh and strength are lost. There are often now sharp cutting pains in the side and chest, the patient may lose his voice, and diarrhœa may occur. Ultimately the patient dies from exhaustion, or from a large blood-vessel giving way in the lungs, when large quantities of bright-coloured blood are passed by the mouth. Until the latest stage of this malady the patient is generally hopeful of recovery, and frequently fails to recognise his danger.

Treatment.—More may be done to prevent than to cure this disease. As it is often hereditary, those of consumptive family should be especially careful as to their mode of life. Avoiding injudicious 'coddling,' they should sleep in well-ventilated rooms, should avoid late hours, should habitually live generously, but not richly or intemperately, should shun exposure to cold and damp, and should wear flannel next the skin. When the disease has declared itself, cod-liver oil and tonics, as iron and quinine, are beneficial. Medicines tending to allay the cough are also required.

Too much stress cannot be placed on the necessity of parents of consumptive family bringing up their children under strict discipline as regards diet, personal hygiene, and general sanitary conditions of life; for such children are not only liable to consumption as they reach adult age, but are also prone to the affection named *Atrophy*, or wasting, already described (*vide* p. 50).

CONVULSIONS.—*Vide* FITS, EPILEPSY, HYSTERIA, TETANUS, HYDROPHOBIA, in all of which diseases convulsions are prominent symptoms. It very rarely occurs that convulsions present, unless as part of, or arising from, some other malady, although sometimes, especially in the case of children, such malady is not readily evident to the non-professional observer. Convulsions may attack one limb, or one half of the body, or may be extended over the whole body. They may persist without any decided interval of cessation, or, as more usually happens, they may recur after intervals of perfect quiet. Convulsions depend on some cause irritating the nerves of the part, and this irritation may be either at their seat of origin in the brain or spinal cord, as when inflammation occurs in these organs, or when spiculæ, or splints of bone, are driven 'into them from accident. Or otherwise, the irritation on which the convulsions depend may be at the ends of the nerves, where they spread on the surface of the skin, or on the surface of the bowels. Of this variety of convulsions *tetanus*, or 'lock-jaw,' from injuries of the hand, convulsions in children from teething, or from constipation, or worms, are illustrations.

CONVULSIONS OF CHILDREN.—Convulsions of children generally occur in delicate infants about the period of teething, especially when children have been fed with improper food. Convulsions from teething, or, indeed, from any other cause, happen much more rarely to children nourished on human milk than when fed on other foods. Convulsions may also arise from the irritation of worms in the intestines. Thirdly, they may be caused by constipation, and the consequent collection of hard fæcal matter in the bowels. Fourthly, they may result from the irritation caused by prolonged diarrhœa. Fifthly, they may come on during fever. Sixthly, they may be a consequence of hooping-cough. Lastly, they may be symptoms of serious maladies, such as epilepsy, or water on the brain.

An attack of convulsions in a child usually presents the appearance of spasmodic contractions of the arms and legs, which are suddenly rendered tense and hard, and are drawn upwards and inwards towards the body; the eyes are also turned up under the lids, the mouth perhaps screwed to one side, while the teeth grate and the lips twitch. This may last for a few moments, or may endure with intervals of incomplete cessation or relaxation for some hours, the child being more or less insensible during the whole period. A marked sign of a tendency to convulsions, or, indeed, it may be said, a minor degree of convulsions, is the turning in of the thumbs towards the palms of the hands. Whenever this is observed the child should be carefully watched, and great attention should be paid to the state of the bowels and teeth, and to the diet.

Treatment.—The general treatment of convulsions occurring to children may be thus described. The child should be put into a hot bath of the temperature of 96° to 98° Fahr. as soon as possible, where it should be kept for ten minutes. While in the bath cold water may be applied to the head. If from natural debility or long illness the child is considered too weak to bear the hot bath, it may be enveloped in a blanket wrung out of hot water, round which two or three dry blankets should be wrapped. The child should remain thus covered for fifteen minutes, when it should be gradually uncovered and well dried with soft warm towels. At the same time if the convulsions have not supervened on prolonged diarrhœa, a purgative, as castor oil, or sulphate of soda, whichever may be at hand, should be given in doses according to the age of the child (half a tea-spoonful of castor oil for an infant six months old, and a tea-spoonful at one year old—of sulphate of soda half a drachm at six months old, one drachm at a year old, in a little water), to be followed in the course of an hour by an enema composed of, for an infant of six months old, one drachm of castor oil in one ounce of soap and water; at one year old, of two drachms of castor oil and two ounces of soap water. To unload the bowels is, in the majority of cases, a matter of primary importance, and, therefore, if not freely moved, the medicine and enema should be again used after the lapse of two or three hours. If, however, the convulsions have followed diarrhœa, and the child is weak and debilitated, purgatives should not be given. In such cases small doses of chlorodyne, according to the age of the child (*vide* p. 9), should be administered every two hours. If, as is sometimes the case, the convulsions appear to arise from an overloaded stomach, and the child makes efforts to vomit, such efforts should be encouraged. If the child can swallow, weak mustard and water (a quarter the strength of Recipe 77) may be given as an emetic, or otherwise the throat may be tickled with a feather. If, as often happens, the child is unable to swallow, no attempts should be made to give medicines (excepting as mentioned below), as fluids put into the mouth under such circumstances will not pass into the stomach, but will probably trickle into the windpipe and do mischief. It is true that fluids may be given through the nostrils, but in the absence of medical aid this plan is not recommended.

When the child comes out of the bath, a mustard plaster, or if available the mustard leaf (Recipe 109), protected by muslin should be put over the stomach, and kept on until the skin is well reddened. In all cases if the gums are hot, and tumid, and tender, they should be lanced (*vide* p. 319). Sometimes lancing the gums when in such condition has been immediately followed by the cessation of the convulsions. If the above measures do not succeed, and if there is *no heat* of head, *ten drops* of chloroform may be sprinkled on a handkerchief, and the latter held two inches from the child's mouth and nose, so that it may inspire an atmosphere impregnated with chloroform, which will soothe the system and diminish the convulsive tendency. Unless the seizure has been preceded by prolonged diarrhœa, it is desirable to maintain a free action of the bowels for some days after an attack of convulsions, and for this senna tea may be employed (*vide* p. 25). If the child has been previously flatulent, and the stomach out of order, antacids, as magnesia and soda, are indicated. In such circumstances citrate of magnesia (*vide* p. 13) may be given. The existence or otherwise of worms should also be ascertained, and if necessary the treatment appropriate for the expulsion of worms (*vide* p. 341) should be adopted. The teeth also should receive more than ordinary attention, for some time after an attack.

Great care should at all times be paid to the diet of children liable to this dangerous affection. One of the most common causes of convulsions is excessive and improper feeding. It is also worth remembering, that it has sometimes seemed that convulsions in children may be caused by hysterical or other excitement in the nurse, when the remedy will be change of nurses; or, if this be impossible, the substitution of animal milk.

[If during an attack of convulsions the child *cannot swallow*, a little croton oil should, if possible, be procured from a chemist, *half* a drop of which should be mixed with a little sugar, and placed with a feather on the back part of the tongue. If the child is *able to swallow*, and the oil or sulphate of soda given as mentioned above, do not thoroughly open the bowels, one grain of calomel and two of rhubarb should be procured for a child one year old, and two of calomel and two of rhubarb for a child of two years of age. In *any case* it will also be desirable to procure bromide of potassium (Recipe 46), a table-spoonful of which may be given to a child two years old, and a dessert-spoonful to a child one year old, every two hours.]

COLD IN THE HEAD.—*Vide* CATARRH, p. 80.

CORNS.—These troublesome affections are growths from the true skin, most usually caused by pressure of the shoe on prominent parts of the feet. If change of shoes or boots, and attention to the 'fit,' do not cure or relieve corns, they may be treated as follows:—

Hard corns on the sole of the foot, or on the sides, or on the toes, are best treated by filing with a sharp cutting file having a convex side. The corn should be thus filed once daily until a slight pain is experienced, which shows that the roots are approached. By continuing this treatment, and by avoiding pressure from hard or ill-fitting boots, or from rough, creased, or darned stockings, corns in such situations may be often thoroughly cured.

But the best remedy for a hard corn, if on the toe, is to remove it, which is effected in the following manner: Cut with a sharp pair of pointed scissors round the circumference of the corn, working gradually round and round and towards the centre. If the edges are well loosened the corn may often be removed by the finger-nail, or a pair of forceps, without pain and without loss of blood. The usual method of paring or cutting away a corn is erroneous. If the corn be properly and wholly removed, a small cavity, or round hole, will be left in the centre where the blood-vessels and nerve of the corn, vulgarly called 'the root,' were. If the corn be skilfully removed, the parts may be squeezed by the thumb and finger without pain.

Soft corns generally occur between the toes, and are best relieved by keeping the toes separate by a little cotton wool placed between, and by taking care that the boots are not too tight. When pressure is thus prevented, and the parts kept perfectly clean, soft corns between the toes will often disappear.

After any kind of treatment for corns the fit of boots and shoes must be attended to, so that no pressure from ill-made boots or hard leather may be made on the part; if so the corn will probably return.

[If the above measures do not succeed, soft corns may be treated by the application of strong acetic or nitric acid, which should be *lightly* applied by means of a small stick of cedar wood or a small camel-hair brush. *Only the centre* of the corn should be thus touched, and the toes should be kept asunder for a few minutes in order that the acid may soak in. Care must be taken that the acid does not touch any part except the corn. Then apply between the toes a small portion of cotton wool. This may be repeated several times every other day until the corn ceases to be inconvenient. Chromic acid, similarly used, is also successful.]

CRAMPS IN THE STOMACH.—*Vide* COLIC and ACIDITY.

CROUP.—This is essentially a disease of children. It often commences quite suddenly, the child waking in the night with difficulty of breathing. In other instances there is for some days a little feverishness, accompanied by sneezing, watering of the eyes, and dry cough, the child appearing to have only a common cold. The child is probably cross and irritable, and the voice perhaps husky and hoarse. After such premonitory symptoms, or without them, the child suddenly awakes with an appearance of suffocation, and with a hoarse ringing cough, to which, from its peculiar sound, the term 'brassy' has been applied. The sound of this cough is so peculiar that once heard it can scarcely be mistaken. It resembles either the crowing of a cock, or the bark of a dog, and has a ringing, metallic tone. The breathing is difficult, and the air is *drawn in* with a sound resembling the passage of air through muslin, or through a metallic tube. The cough, as also the difficulty of breathing in a lesser degree, occurs in paroxysms, in the intervals of which the child may have a little restless sleep. At first the cough is dry, but at length *a mucous fluid* is brought up. At a later period of the disease tubes, or flakes, of a whitish membranous substance, appear. The efforts to bring up such material are very great; the countenance is flushed, sometimes almost livid, and the body is covered with perspiration, the hands are clenched, the arms thrown about, the bed clothes tossed away. The child sometimes sits erect, sometimes lies down, and sometimes the head is rigidly bent backwards. The eyes project, and the whites of the eyes become congested, red, or 'bloodshot.' The pulse is quick and hard, the skin burning, and the thirst great. The little patient frequently carries the hand to the throat, as if to remove some obstruction. In the morning, perhaps, the symptoms somewhat abate, and the child continues better during the day; but this seeming step towards recovery is often deceitful—the return of night being accompanied by a re-accession of suffering. If the case ends favourably, there is gradual amendment, after a considerable amount of *flaky* material has been coughed up. If the disease terminates fatally, the paroxysms of coughing, and the difficulty of breathing, become more violent and incessant, until the child dies, partly from exhaustion and partly from suffocation. Often, also, towards the end of the case, one or more convulsive seizures occur, during which the patient may expire.

It should be understood that croup consists essentially of the formation of a white membranous deposit in the windpipe, and air-passages leading to the lungs, which deposit blocking up these air-tubes, or the small aperture leading from the throat to the windpipe, causes the extreme difficulty of breathing characterising the disease. But milder attacks of a croupy character may occur, in which the disease does not proceed so far as to the formation of this deposit. In such cases the symptoms are as before detailed until the coughing up of *mucous fluid is mentioned* (*vide* p. 105); when, after expectoration, this mild variety of croup generally passes off.

With regard to the age at which croup is most liable to occur, it may be stated that the period between one year and five is the time during which children are most susceptible. After five years of age the tendency to croup gradually declines, while the danger to be apprehended from an attack is less than before that time of life.

The causes of croup are generally admitted to be cold, or exposure to damp changeable atmosphere. But there is in some children an unexplainable constitutional aptitude or tendency to attacks of the disease, which renders them liable to suffer from an exposure or change of temperature so slight as not to be felt by other children; also when a child has once had an attack, a recurrence one or more times is not unfrequent. Croup has also—doubtless from some unknown atmospheric condition—prevailed epidemically in various localities. As a general rule, low, damp positions are favourable to croup.

For the distinctions between *croup* and *diphtheria*, see DIPHTHERIA, p. 121.

Treatment.—On the first appearance of croupy cough or hoarseness, expectorant medicine as ipecacuanha and paregoric (Recipe 31) should be given, and the patient should be well protected from cold, especially at night. In children subject to croupy attacks the malady may often be stopped in the first stage by giving, when the child wakes up with hoarse cough, a tea-spoonful of *salad* oil, which, as it is swallowed, lubricates the parts about the entrance of the windpipe, and by lighting several lamps in the room, or otherwise increasing the temperature, often in India so much less by night than by day. For this purpose when children are subject to croup several lamps should be put ready, so that they may be lighted immediately. Under such treatment the malady may perhaps pass off as a common cold or cough.

When undoubted croup is present, an emetic should be at once given. This for a strong child of two and a half to three years old should consist of three drachms of ipecacuanha wine in two or three ounces of warm water. If the patient is not a strong robust child, two drachms of ipecacuanha wine with two or three ounces of water should be given every five minutes till free vomiting occurs. The action of the emetic should be assisted by a warm bath of from 98° to 100° Fahr. in temperature. If the emetic appears to produce relief, it may be repeated in about one hour, after which ipecacuanha wine in eight-drop doses with a drachm of water should be given every half-hour. Leeches should also be applied over the *upper part of the breast bone*, in the number of one moderate-sized leech for each year of the child's age. But when the leeches come off the bleeding should be stopped, which can easily be effected by pressure with the finger on the leech bite against the breast bone. After the vomiting from the emetics has ceased, if the bowels have not acted freely, a tea-spoonful of castor oil should be given. Neither opium nor any other narcotic agent should be used. As blisters or other counter-irritants rarely seem to do good in this disease, their use is not recommended, but a sponge wrung out of hot water and applied to the throat often proves beneficial. In the latter stages of the complaint stimulants, as wine or brandy and water, are indicated. *Throughout the treatment it must be recollected that the object is to combat the inflammation, not to weaken the child;* therefore, if possible, the patient should be induced to take strong broth or other nourishing fluids at any period of the disease. The atmosphere should also be rendered moist by boiling water in the room, and allowing the steam to escape; the temperature of the apartment *must* also be maintained *equable* and warm. In a cold climate the proper temperature of the sick chamber would be 65° Fahr., but in India it must generally be much higher. But however this may be, it should be maintained as *equable as possible* both day and night, and all draughts of cold air should be prevented.

When all measures fail, opening the windpipe has sometimes proved successful; but this operation can only be undertaken by a surgeon.

CROUP, SPASMODIC.—Croup of a spasmodic, not inflammatory description, popularly known as 'child crowing,' is not an unfrequent malady. It depends on spasmodic or convulsive action of the muscles about the upper part of the windpipe, and is to be distinguished from true croup by the very sudden accession and decline of the fits or paroxysms, and by the perfect freedom of the breathing in the intervals. Also by the absence of fever or catarrhal symptoms, and generally by the absence of cough. It is generally connected with, and often immediately caused by, the irritation of swollen gums during teething, by glandular enlargements in the neck, and by constipation, or accumulation of fæcal matter in the intestines. It is in reality one form of the convulsions of children (*vide* remarks under that head, p. 100).

The principal feature of this affection is a remarkable *crowing* inspiration, unattended with cough, and coming on suddenly often on first waking from sleep. For a minute or so the child makes ineffectual efforts to draw breath, and struggles violently, but at length the difficulty is overcome and breath is *drawn in* with a loud crowing sound. In less severe cases the breathing is hurried and laborious, each inspiration being attended by a crowing sound. In extreme cases the face becomes livid, the whites of the eyes bloodshot, the thumbs are clenched in the hands, the fingers and toes are bent, and the joints of the wrists and ankles are forcibly turned inwards; occasionally death results from suffocation or exhaustion, but the malady is not so dangerous as inflammatory croup.

Spasmodic croup occurs to children of similar ages as true croup, especially during the period of teething, and is most common in weakly scrofulous children.

Treatment.—During the paroxysm cold water should be dashed on the face and chest, and the child should be exposed to a current of air, and if necessary, as soon as a warm bath can be obtained, the child should be immersed in the water, or its feet may be put in mustard and warm water if a hot bath is not procurable. A stimulant, as a tea-spoonful of wine or brandy and water, will also be desirable; and if the fit comes on after a hearty meal, an emetic, as a drachm of ipecacuanha wine with two drachms of water, should be given. But it is during the intervals between the attacks that curative agents are most serviceable, and these must depend on the causes producing the irritation. The condition of the gums and teeth must be investigated (*vide* TEETHING, p. 303). Constipation or worms must be removed (*vide* remarks on these conditions, pp. 95, 341), and swollen glands in the neck must be treated on established surgical principles (*vide* ENLARGED GLANDS, p. 185).

Children subject to any variety of croup require great care as regards their diet, and attention in avoiding catching cold, or ordinary cough, which in those constitutionally predisposed is liable to terminate in an attack of croup.

COUGH.—Cough is rather a symptom of other affections than a malady in itself; it is an accompaniment of throat affections, stomach derangements, of mild or severe bronchitis, of inflammation of the lungs, of pleurisy, of liver disease, and of some other maladies.

Cough, in the popular acceptation of the term, is, however, mostly the consequence of cold, damp, or draughts, and when not severe may be best relieved by measures which promote perspiration. Three or four grains of Dover's powder may be taken twice or thrice a day, or a good cough mixture may be made as follows: Take of honey and treacle of each four ounces; of vinegar five ounces; mix and simmer them over a slow fire, then add a dessert-spoonful of ipecacuanha wine, and the same quantity of paregoric. The dose is two table-spoonfuls three or four times a day.

DEBILITY.—*Vide* ANÆMIA, p. 42.

DELIRIUM.—*Vide* p. 33.

DELIRIUM TREMENS.—This is the peculiar delirium of drunkards, and presents certain characteristics differing from any other kind of delirium. It is generally caused by continuous or prolonged drinking, but may follow a single indulgence in excess. The patient is incoherent, and fancies he sees all kinds of frightful objects, especially at night; his hands tremble, his eyes wander, his pulse is feeble, his skin moist, he has no appetite, and he cannot sleep. The patient, however, is seldom violent, and may be generally restrained without force, although the reverse occasionally happens. But there is cunning with the delirium, and the patient may secrete such articles as razors or knives, so that he requires watching. Often the person exposes himself to injury by endeavouring to effect an escape from his attendants, or from imaginary dangers. In fatal cases the delirium is succeeded by insensibility, in which state the patient dies after a period in which heavy breathing, twitching of the limbs, and involuntary discharge of fæces, with perhaps convulsions, are the most marked symptoms.

The spectral and mental delusions in delirium tremens are in some respects peculiar. The patient may declare there are snakes under his pillow, or he may be seen listening to the arm of a chair, which he believes to be a hissing serpent; or he may accuse a bystander of a design on his life, or imagine he is being besieged by a party of soldiers; or he will pretend to be busy with his daily avocations; or imagine himself to be possessed of great wealth, which he will either hoard or lavishly distribute.

Delirium tremens must be distinguished from the delirium accompanying inflammation of the brain and its membranes. This is accomplished by a consideration of the history of the case, delirium tremens occurring in persons addicted to drink; inflammation of the brain probably originating without any evident exciting cause, or after exposure to the sun. Again, in delirium tremens there is an absence of headache, and light is not painful to the eyes, while the reverse obtains in inflammatory delirium. Similarly there is in delirium tremens an absence of febrile symptoms and a moist skin, the reverse being the case in affections of the brain. In delirium tremens there is also generally a smell of liquor with the breath. It sometimes, however, happens that delirium tremens occurs in persons who while drinking hard have also from exposure to the sun a congested or even inflammatory condition of the brain. The symptoms of delirium tremens may then be somewhat less characteristic than as above set forth. In doubtful cases, in the absence of medical aid, it will be best to treat the case as one of delirium tremens.

Treatment.—In some instances purgative remedies are desirable at the first. These cases are known by the flushed bloated appearance, the very foul tongue, the bad-smelling breath, and the history of a recent surfeit of eating as well as of drinking; in such cases Recipe 1, followed in two or three hours by repeated doses of Recipe 2, may be given with great advantage.

In other cases the strength must be supported by diet of the most nutritious kind in a fluid form, such as yolk of egg, soups and the like, which should be given often in small quantities. When there is great depression and feeble pulse, with moist pale tongue and pallid countenance, a small quantity, as one ounce, of wine, or half an ounce of brandy, may be administered with the soup, or in the shape of 'egg-flip.' If the patient continues to take and digest food the danger is materially diminished, and food adapted to the feeble state of the system, with good nursing, is the *sine quâ non.* The danger all through the case is from exhaustion, but this exhaustion cannot be fully combated by its cause, *viz.*, alcoholic stimulants; therefore reliance must be placed principally on nourishing food. The disease, in short, must be treated as one curable, not by withholding stimulants altogether, but by using them in strict subordination to good nursing, and careful diet and regimen.

Formerly opium was generally used as a remedy in delirium tremens, but the administration of any narcotic, notwithstanding the apparent indication in the sleeplessness of the patient, requires caution, and should scarcely be given except under medical advice. But when there is any natural tendency or desire to sleep, a dose of twenty grains of chloral may be given. It must, however, be recollected that opiates are only safe in delirium tremens when used with the object of aiding or seconding the natural cure of the disease. Secondly, that opium should never be given in larger doses than would be safe in any other malady; otherwise, narcotic poisoning may be substituted for alcoholic poisoning.

DERBYSHIRE NECK or GOITRE.—This affection consists in the enlargement of a gland situated in the front of the neck, which sometimes attains a very great size, causing great inconvenience by pressing on the windpipe and blood-vessels of the part. It is frequently associated with idiocy.

It is, perhaps, more common in females than in males; it occurs principally in mountainous or hilly districts, and particularly where lime is contained in the water. It has therefore been thought due to the latter cause, and removal to another locality is a better remedy than any medicinal agent.

[The best local application is iodide of mercury ointment (Recipe 94), which should be rubbed on the part daily; and iodide of potassium (Recipe 45) should be given internally.]

DIABETES.—This complaint comes on very insidiously, and is characterised by the passing of large quantities of pale, light-coloured urine, having an apple-like odour, and containing a large amount of sugar. Sugar, when thus voided with urine, may be easily detected by what is known as 'Moore's test.' This consists of boiling in a test tube held over a spirit lamp equal parts of the suspected urine and of *liquor potassæ.* If sugar is present, the fluid becomes of a fine deep purple colour. If sugar is not present, no change results. Diabetic urine attracts flies in large numbers, which in some cases has led to suspicion and detection of the disease. In diabetes the appetite for a long time remains good, but the skin is always dry, the bowels costive, the gums pale and spongy, and the patient wastes away. As this emaciation progresses, the general health suffers, the appetite declines, there is great debility, and the feet may swell. As regards treatment, more is to be effected by appropriate diet than by medicines. Sugar should be interdicted, and bran bread used, while the remainder of the diet should consist chiefly of meat, fatty matters, milk and eggs. A diet composed principally of skimmed milk, with bran biscuits, has been recently much recommended by good authority. Cod-liver oil, with opium and astringents, may be given if diarrhœa occurs. But the disease, although thus often kept in abeyance, is seldom cured, and the treatment demands professional advice.

DIARRHŒA.—Diarrhœa, or looseness of the bowels, originates from many causes, which may be briefly summarised thus:—

1. Diarrhœa depending on congestion of the liver.
2. „ premonitory of dysentery.
3. „ premonitory of cholera.
4. „ accompanying scurvy.
5. „ from malarious influences.
6. „ from imprudence in diet.
7. „ from atmospheric changes.
8. Hill Diarrhœa.
9. Infantile Diarrhœa.

The first five forms of diarrhœa are noticed under the heads of ‘Liver Disease,’ ‘Dysentery,’ ‘Cholera,’ ‘Scurvy,’ and ‘Malarious Fever.’

DIARRHŒA FROM IMPRUDENCE IN DIET.—This is caused by indigestible food, as unripe fruits, or ripe fruits in excess, from badly cooked vegetables, and often from shell fish, or inferior 'tinned' provisions, or from inferior beer or wine. Europeans, especially on their first arrival in India, cannot be too cautious in avoiding the too free use of fruits, vegetables, and articles of food to which they have been unaccustomed, as diarrhœa so excited is liable to result in some more serious malady.

Treatment.—When diarrhœa is caused by indigestible food, the purging is nature's own remedy, to free the bowels of substances which are irritating them, and no medical treatment is required; but abstinence should be practised. If the diarrhœa is more than ordinarily troublesome, and accompanied by colicky pains, a spoonful of castor oil with twenty drops of chlorodyne will be beneficial. If the purging continue, or if the evacuations are sufficiently copious to cause depression, thirty drops of chlorodyne in a half wine glass of brandy and a little water may be taken, or Recipe 67 may be used. If there be much griping or nausea, and this is not relieved by the medicine, apply a mustard poultice, or a turpentine stupe (Nos. 108, 109), over the bowels. Irritability or sickness of the stomach may be relieved by soda water, or iced water.

DIARRHŒA FROM ATMOSPHERIC CHANGES.—Diarrhœa often results from sudden changes of temperature, as occur for instance at the commencement of an Indian monsoon. Or, as not unfrequently happens, on first rising in the morning, and passing out into the cold morning air. This variety of diarrhœa generally subsides spontaneously, unless the person be otherwise in bad health, when it may be the prelude to some more serious disorder. No kind of purgative medicine should be given for this form of looseness; a dose of chlorodyne, or Recipe 67, being the better measure. But prevention is still more desirable, and this may be accomplished by caution in not sleeping in draughts, especially at the more changeable seasons of the year, by clothing in flannel, by wearing a flannel belt, and by taking a biscuit and a cup of hot tea or coffee before going out in the morning.

HILL DIARRHŒA.—The presence of a peculiar species of diarrhœa at hill stations, and more especially at the Himalayan hill stations of Simla and Nynee Tal, has been frequently the subject of comment. The symptoms are in some degree peculiar, and consist at first of *painless* diarrhœa, occurring chiefly in the early morning. The stools passed are light, sometimes white in colour, and generally copious and frothy. As the disease advances, light stools are also passed in the evening, but the patient, probably continuing to feel tolerably well, takes little notice of the commencement of the malady. The calls to stool, although unattended by pain, are urgent; but the fæces are passed without straining, faintness, or griping, and are succeeded by a feeling of comfort. The most distressing symptoms are fulness and distension of the bowels by *flatus*, eructations having an odour and taste of sulphuretted hydrogen, and other dyspeptic manifestations. But the stools are not offensive. The pulse is feeble, the tongue furred in the centre, but the appetite not much impaired. There is also often slight sallowness.

If this condition, often called 'White Diarrhœa,' be not checked, the person falls into a state of confirmed weakness or *cachexia*. The stools become more numerous, progressive emaciation takes place, the mind becomes weak and fretful, and fever occurs. Then probably the stools become dysenteric, containing slime and blood, and the patient dies exhausted.

Causes.—Difference of opinion exists as to the precise cause of *Hill Diarrhœa*. It has been attributed to malarious influences, and to defective sanitation, and doubtless such conditions predispose to the malady. But it would rather appear that the direct exciting cause is sudden vicissitude of temperature, aided by a colder, moister atmosphere than the person has been accustomed to, leading to congestion of the liver and bowels, with resulting diarrhœa. And the fact that *Hill Diarrhœa* is most prevalent about the period of the commencing monsoon, and that new arrivals are more subject to it than older residents, would appear to favour the conclusion that sudden changes of temperature are the chief exciting cause. Nothing indeed is more common than persons arriving at hill stations being attacked with more or less severe diarrhœa soon after ascending into the colder atmosphere of the mountain climate, and this especially if the wearing of warmer clothing has been neglected.

Treatment.—Treatment should be early and prompt. Too hot drinks must be interdicted, and the diet restricted to animal broths and farinaceous gruels or puddings, with a little port wine daily. Dover's powder combined with quinine and ipecacuanha (Recipe 38) should be administered every night. But if the ipecacuanha produces sickness, the quinine and Dover's powder may be given *alone.* Chlorodyne, and Recipe 66, may be used alternately; the latter compound being not only agreeable, but also often especially beneficial. Mustard poultices should be applied daily, or as often as can be borne, both on the right side over the liver, and also over the bowels. But if diarrhœa and emaciation still continue, or if the motions become dysenteric, that is, containing blood, immediate change from the hill climate will alone effect a cure.

[Other prescriptions, which may be compounded by a chemist, and which it would be well to take for hill diarrhœa, are given under Recipes 63, 68.]

DIARRHŒA, INFANTILE.—An infant's bowels should be relieved three or four times daily, and the motions should be of the colour of mustard, and free from fœtor or acid smell. The diarrhœa of children is most commonly caused by teething; by irritating matter in the bowels, such as undigested food; or by worms; or it may come on during hooping-cough. It is often accompanied by vomiting, and is always attended with more or less flatulency, and occasionally by griping. The motions are often green, and contain masses of coagulated or curded, and therefore undigested, milk. As a rule diarrhœa in children should not be too suddenly checked, particularly if the child is teething, when it is frequently a salutary effort of nature to relieve the irritation of the system thus excited. If the purging is moderate, and the motions at all consistent or formed, it will most usually subside without any medicine. The best and safest treatment is to give at the onset half a tea-spoonful of castor oil, or if the child is a year old, a tea-spoonful. This will relieve the bowels of any irritating matter lodged there. If the purging continues, chlorodyne may be given in doses corresponding with the age of the child (*vide* p. 9). If the child is feverish at one time of the day, and cool at another, the quinine and Dover's powder (Recipe 40) may be used.

While thus giving remedies for the diarrhœa, the condition of the gums should be frequently investigated. If the gums are full, red, and swollen at the *commencement* of the attack of diarrhœa, they should be lanced (*vide* p. 319), after which probably the succession of remedies noted above will not be required. If in spite of medicines the purging continues, and the gums become red and prominent *during* the persistence of the diarrhœa, they should be lanced at the most prominent or swollen part. The child should be dieted as afterwards mentioned.

[In violent cases, when the above remedies and care in diet do not prove efficacious, and if there is acidity of the child's stomach, to be recognised by sour-smelling breath, Recipe 64 should be procured and given night and morning, with Recipe 42 three times a day. If there is no acidity of the stomach apparent, the sulphuric acid and laudanum medicine (Recipe 61) will be the better remedy. The dose for a child six months old is half a tea-spoonful; at a year old, one tea-spoonful. A tea-spoonful of this Recipe contains nearly one drop of laudanum (or tincture of opium); and it may be here observed, that one small drop of laudanum for each year of a child's age is the ordinary dose when this medicine is used. But any preparation containing opium must always be given with great caution to children, on account of their well-known susceptibility to the action of this drug. The particular dose recommended above should not be repeated oftener than every four hours.

If the child is discovered to have worms, the best remedy is *santonin*, the dose of which for a child two years of age is two grains at bedtime, to be followed by a tea-spoonful of castor oil in the morning. Eight or ten drops of oil of turpentine in half a tea-spoonful of castor oil may be given if the santonin is not successful.]

It sometimes happens that an infant has been suffering from diarrhœa for several days, passing green motions, or motions like frog spawn, when a sudden change occurs. The griping increases, there is great straining, and mucus and blood are found in the stools. The diarrhœa has passed into dysentery, and the character of the case is more grave and serious. For this state the following medicine may be used: compound ipecacuanha powder (Dover's powder) five grains, ipecacuanha wine one drachm, sugar three drachms, water, or, if available, aniseed or peppermint water, nine drachms. Shake the bottle well, and give one tea-spoonful for a child nine months old every three hours. No calomel should be used for the diarrhœa or dysentery of children, for calomel produces in children peculiar green-looking stools, and it might be erroneously given to correct the very appearances it produces, and thus do injury. A warm bath is sometimes advisable at the commencement of the malady before the patient is weak, but if the child is much debilitated warm baths should not, as a rule, be used.

[If the above measures do not succeed, Recipes 64 and 65 may be obtained and used in succession; the first-named Recipe being most advisable when there is sour-smelling breath.]

In the case of young infants diarrhœa is often caused by improper feeding, or by overfeeding, or by some deleterious property of the milk. Infants should not be nursed oftener than every two hours, and as the age advances the periods should be lengthened. If fresh milk is taken into the stomach while some of the last meal still remains, the result is generally either purging or vomiting. When the milk of the nurse is at fault, it will probably be due to improper diet of the woman, and this may require not only alteration in the food, but also the action of a purgative dose. If the milk is scanty or otherwise deteriorated, the nurse should be changed.

Both in the diarrhœa and dysentery of children who are being brought up by hand, or who are partially fed by hand, it is sometimes desirable to change the food by leaving off milk, and giving weak chicken broth instead. When the milk is resumed, that given by hand should be well diluted, and a dessert-spoonful of lime water should be added to each meal. (To make lime water *vide* Recipe 41.)

Lastly, it should be recollected that the rapid exhaustion of the vital powers of a child, caused by continued infantile diarrhœa, is a condition very favourable to the supervention of *water on the brain*, or of symptoms tending to that condition called *spurious hydrocephalus*, and attended or not with convulsions. A child with bad diarrhœa should therefore be closely watched, so that the first signs of such maladies may be recognised and treated (*vide* p. 64).

DIPHTHERIA.—This complaint, sometimes called *leather throat*, often prevails in an epidemic manner, that is, it affects various people about the same time. It is communicable through the atmosphere, and the germs of the disease will sometimes cling with remarkable tenacity to a house or apartment in which a patient has suffered, even although every care has been taken to purify and cleanse. Numerous instances have occurred of persons suffering from diphtheria, after occupying a room in which a patient had been ill many weeks, and, in some cases, months, previously. It appears, from experience, that after exposure to infection the malady may come on in three days or be deferred as long as three weeks; and it further seems that a person may communicate the disease six weeks after convalescence.

There are two principal varieties of diphtheria: one in which the disease commences as a common sore throat; a second in which without any previous sore throat the person is suddenly attacked with shiverings and hoarseness, quickly followed by feelings of suffocation and croupy symptoms. Diphtheria is in fact allied to *croup* in its nature, consisting like the latter malady in the formation of a membranous substance in and over the parts about the throat, which are at first seen reddened and swollen and afterwards covered with a white exudation which often extends to the tongue, palate, gums, and to the inside of the cheeks. A distinction between diphtheria and croup is the formation of the membrane over the tonsils and in front of the windpipe in the former malady; while in croup the membrane forms inside the windpipe. That they are not the same diseases is further proved by anatomical examination; the morbid deposit of diphtheria being secreted in the substance of the mucous membrane of the part affected, while the deposit of croup is on the surface. Further, diphtheria, as above noted, is contagious, and is therefore the local manifestation of a special blood disease, while croup is not contagious, being the local results of cold. Again, diphtheria most often occurs to adults, croup to children. Croup is most frequent during cold moist weather, especially during the prevalence of easterly or north-easterly winds. Diphtheria, on the other hand, prevails at all seasons and during all kinds of weather—sometimes as an epidemic, and then often coincident with scarlet fever; but always more or less connected with, or influenced by, the effects of sewage emanations or imperfect drainage. Hence, in Europe especially, it is met with in houses having the accommodations of fixed wash-basins and water-closets in immediate connection with nurseries and bedrooms.

Diphtheria, moreover, is undoubtedly infectious by direct contact of the expectoration of the sick with a healthy mucous surface, or by emanations from an affected person, as is evidenced by the manner in which it often spreads in a family. On the other hand, a child affected with croup lying in a confined room (as so often seen among the poorer classes) does not give it to other children, even although in the same apartment; while under such circumstances diphtheria spreads. In one feature doubtless there is similarity, the presence near or in the air-passages of the material formed in both diseases, giving rise to very similar symptoms, as regards the sound of voice, breathing, and suffocating paroxysms.

Symptoms.—The first symptoms of this disease are great depression, chilliness, nausea, and occasionally diarrhœa. The throat feels stiff, with some difficulty of swallowing, but not much pain until the affection extends to the nose and air-passages. When the disease has fully formed, there is always husky cough, great difficulty of swallowing, and fever. If the disease extends into the windpipe, known by croupy cough, increased difficulty of breathing, and appearance of suffocation, the danger is great. Growing obstruction of breathing and lividity of face and lips point to a fatal termination.

Treatment.—This consists in general and local measures, as there is no drug which can be looked upon as a specific, nor any means by which the disease can be cast off when it has once attacked an individual. But much may be done if the disease is recognised sufficiently early. The patient should be put in a well-ventilated room free from draughts, and the temperature should be maintained equable, and the air moist, as mentioned under BRONCHITIS and CROUP (pp. 73, 108). Complete quiet and rest should be observed, and as there is often great prostration, the patient's strength must be stored.

Milk may be given almost *ad libitum*, and, if necessary, a little brandy may be added. Beef tea, chicken broth, and eggs may be used, but no solid food should be allowed, and the patient must be fed slowly, as the act of swallowing is always difficult and sometimes dangerous. The patient should inhale the steam from hot water and vinegar three or four times daily, and strong alum solution (alum three drachms, water one ounce) should be applied to the inside of the throat, every six hours, with a camel-hair brush or a piece of stick to which a bit of lint has been firmly attached. Or four or five grains of powdered alum may be blown into the throat from a quill or glass tube, a method of application sometimes least irksome to the sick person. The patient may also be daily enveloped in a vapour bath: this may be done by constructing a kind of tent of blankets over the bed, while, by the aid of a spirit-lamp, a kettle may be kept at the boiling point, the steam being permitted to pass beneath the blanket canopy. As medicine, quinine (Recipe 17) may be given every four hours. In the later stages of the complaint there may be great weakness, demanding wine or brandy as stimulants.

[If obtainable, instead of the strong alum solution mentioned above as an application to the inside of the throat, use a strong solution of nitrate of silver, to be procured from the chemist. Strength, ten grains of nitrate of silver, to one drachm of distilled water. The solution should be thoroughly applied with a 'dabbing' motion to all the diseased portion of the throat which can be seen, but not so forcibly as to rub off the deposit, or cause bleeding. Also give fifteen drops of the tincture of the sesquichloride of iron with each dose of quinine.]

As soon as the patient can be moved with safety change of air is most beneficial. The house, and particularly the sick room, should be well cleansed and fumigated. Articles of clothing should be thoroughly disinfected, or still better destroyed (*vide* DISINFECTANTS, p. 503). A great danger in diphtheria is inhaling the breath of the infected person, and particularly so with children; therefore communication with other people should be avoided as far as possible throughout the whole illness. Attendants should practise the most careful cleanliness, should wash in carbolic disinfecting fluid, and should studiously avoid the contact of the expectoration of the patient with their own lips or mouth, as may accidentally occur.

DROPSY.—Dropsy is generally not a disease *per se*, but is a frequent consequence and symptom of other diseases. Dropsy consists of swelling of the parts affected, caused by the escape of the watery portion of the blood through the coats of the veins into the surrounding tissues. This is produced by some impediment to the circulation of the blood causing stagnation of that fluid; as for example swelling, or in reality dropsy of the leg, may be caused by a tight ligature, as a garter, if allowed to remain sufficiently long. The most usual positions of dropsy are the lower extremities, and the abdomen or belly. The malady is recognised when external by the parts affected 'pitting' on pressure: that is, if pressed upon by the fingers, depressions are left which gradually fill up.

Dropsy is generally connected with, and traceable to, one or other of the following conditions:—

1. Exposure to cold.
2. Disorders of the *menses*, or 'monthly flow' of females.
3. Disease of the heart.
4. Disease of the kidneys.
5. Disease of the liver.
6. Disease of the spleen.

DROPSY FROM EXPOSURE TO COLD generally occurs suddenly, and may affect the whole surface of the body, forming the condition known as *anasarca*, in which there is deposit or effusion of watery fluid in the cellular tissue beneath the skin. This condition may occur after any exposure to cold and damp, or from sitting in a draught of cold air while the body is freely perspiring from severe exercise. The action of the skin is suddenly checked, and watery fluid becomes lodged in the loose tissues beneath. Or *anasarca* may occur after scarlet fever, during which malady the action of the skin is also impeded. Should sudden general dropsy from cold or from checked perspiration present, the patient should be kept warm and should take sulphate of soda (Recipe 2), to act on the bowels and produce watery stools; Dover's powder in five-grain doses three times in the twenty-four hours to act on the skin, and half-drachm doses of sweet spirits of nitre to increase the flow of urine. Warm vapour baths as recommended under DIPHTHERIA (p. 123), otherwise warm baths, will also be generally advisable. Dropsy following scarlet fever should be treated as recommended above, excepting that nitre should not be given.

DROPSY FROM, OR ACCOMPANYING, DISORDERS OF THE MENSES.—This is generally confined to the lower extremities, but may appear also in the hands and face, which become more swollen towards evening. This kind of dropsy is connected with suppressed or insufficient monthly discharges, and the treatment mentioned under the head AMENORRHŒA or DYSMENORRHŒA should be employed (*vide* pp. 330, 335).

DROPSY FROM DISEASE OF THE HEART commences in the legs and arms, often at the same time, and gradually involves the whole body.

DROPSY FROM LIVER OR SPLEEN DISEASE affects first the abdominal cavity, causing dropsy of the belly, which swells, and may be felt to contain fluid, a condition called *ascites*.

Dropsy is therefore due in the great majority of instances to some organic internal disease, meaning thereby some disease involving change of structure in the parts implicated, and which sooner or later will prove fatal. Death generally occurs from feebleness of the heart, which at length ceases to act. But a fatal result may be caused by an extension of the dropsy to the lungs causing suffocation, or to the brain causing convulsions. The treatment of dropsy must therefore be sought for in the *paras.* on those diseases of which it is a prominent symptom.

DROPSY, OVARIAN.—Ovarian dropsy is a different kind of disease from either of the foregoing. It only occurs in the female sex, and consists in the gradual growth and distension of one or more of the parts called the 'ovaries,' by watery or albuminous fluid. The 'ovaries' being situated on each side, rather above the female groins, the disease presents as a tumour or swelling on one or other side in that position. But if both ovaries are affected, the tumour appears central; or, in the latter stages of the malady, one tumour extends over the whole of the bowels. The strength and general health of the patient remain long unimpaired, until the bulk and pressure of the swelling on neighbouring parts bring on difficulty of breathing, and swelling or dropsy of the lower extremities. In some cases there are periodical attacks of pain and tenderness in the tumour, and also cessation of the monthly discharges, but neither of these symptoms is constantly met with. For this malady no medicinal treatment is of any service. The only chance of cure is submitting to a surgical operation.

DYSENTERY.—This disease is more prevalent in India and other tropical climates than elsewhere. A long-continued high temperature undoubtedly predisposes to the disease, which is often excited at the changing period from the hot weather into the damper season of the monsoon. The principal causes of dysentery may, therefore, be said to be a tropical climate, exposure to sudden changes of temperature; also imprudent change of clothing, particularly of that worn over the bowels; drinking water containing mineral or vegetable impurities, irregularities in diet, famine and want, lying on the damp ground, residence in ill-ventilated, imperfectly drained, and badly located habitations. Many also believe that exposure to malaria will excite dysentery. Lastly, dysentery has frequently appeared to arise from contagion, becoming epidemic in crowded, unventilated gaols, in crowded barracks or ships, or in armies badly fed, lodged and clothed; especially when the moral depression from defeat in battle, or from other causes is superadded.

The European as compared with the Native is peculiarly liable to dysentery. Among soldiers eleven Europeans are admitted to hospital for this malady for every single Sepoy. Up to thirty years of age there is a larger proportion of dysentery among Europeans; after that age the number so suffering is lessened; but of those attacked a greater *percentage* die.

The first symptoms of dysentery are feeling of griping about the navel, often accompanied by nausea. Very frequently this is first felt after incautious exposure to night air, particularly during sleep, and more especially if the wind has been suffered to play on the bowels, even often if well covered. Next there are irregular loose discharges from the bowels, which may continue one, two, or three days, forming the premonitory diarrhœa of dysentery. To this succeed irregular griping pains, gradually becoming cutting and shooting, with great heat about the fundament and frequent straining and purging. Matters now voided consist of liquid fæces streaked or mixed with white mucus and blood. As the disease becomes more severe, shreds or large flakes resembling the washings of raw meat often pass away. The desire to stool is generally most urgent during the night; in some instances it is incessant, in others there may be ten or twenty calls in the twenty-four hours. The amount of attending fever is very variable, in some instances hardly exciting attention, in others evidenced by a flushed face, dry skin, hard quick pulse, and furred tongue. Pressure over the bowels is painful, although the parts are not so tender as when inflammation of the bowels is present. Absence of pain or tenderness of the bowels, and slimy bloody stools unmixed with fæcal matter, indicate that the lowest part of the intestines (the rectum) is chiefly implicated. A cadaverous smell, anxiety of countenance, feeble pulse, hiccup, and involuntary motions pronounce the case hopeless.

It should always be recollected that in every case of dysentery there is danger of the liver becoming affected, and of liver abscess forming as a secondary consequence of the dysentery. This possibility therefore renders every case of the kind more serious, and shows the necessity of prompt, careful, and efficacious remedial measures.

Treatment.—In the mildest form of the affection, when griping pains are complained of at intervals, followed or accompanied by the discharge of slightly bloody or slimy stools, fomentations, or the turpentine stupe (Recipes 81 and 108), rest in the horizontal posture, and five grains of Dover's powder three times a day, will frequently effect a cure. The diet in such cases should be of the plainest description, consisting of broths and farinaceous gruels, without any solid material.

In the more acute forms of dysentery, when the calls to stool are frequent, the pain cutting, the abdomen tender, the patient feverish, and the constitution good, the application of leeches to the bowels may be called for. In such cases one ordinary-sized Indian leech (which is smaller than the English leech), up to thirty-five in number, may be applied for each year of the patient's age. If leeches are used, they should be made to bite over the most tender or painful part of the belly, which will be generally towards the sides. If the pain, tenderness, and fever do not seem to demand the use of leeches, give immediately (or otherwise after the leeches have come off) forty drops of chlorodyne in a tablespoonful of water; fifteen or twenty minutes afterwards give thirty grains of powdered ipecacuanha in a wine-glassful of water, and then apply a mustard poultice over the pit of the stomach (not the bowels) for twenty minutes. The patient should lie down and remain perfectly quiet. This treatment will probably cause great nausea and depression; but if vomiting does not soon occur, or if it does not occur in a very violent manner, and if the patient is not faint, the same medicines should be again given in about four hours afterwards, and repeated at such intervals during two days. The treatment of dysentery with large doses of ipecacuanha is now admitted to be the most successful method of combating the disease. But the vomiting and depression produced by the ipecacuanha are sometimes so great that the treatment cannot be continued. In such cases, or when, as sometimes happens, ipecacuanha administered as above fails to prove beneficial, it will be advisable to give smaller doses of ipecacuanha with quinine and Dover's powder (Recipe 39), every four hours, and to use soap and water injections twice daily (Recipe 104).

In all cases of dysentery the recumbent posture should be insisted upon, and the patient should be instructed to give way as little as possible to the frequent inclinations to stool. In any case it will always be right to apply warm applications to the bowels, as fomentations, hot bran, linseed meal, or rice-flour poultices. The patient should be kept in a well-ventilated apartment. When stools are passed they should be removed immediately, and some disinfecting agent should be placed in the pan, as sulphate of iron, or carbolic acid (*vide* DISINFECTANTS, p. 503), and also used in the room (*vide* Recipe 116 and p. 577). The food should invariably be of the simplest kind, as good broth, sago, corn-flour, arrowroot, milk and jellies. If the accompanying fever is slight, a small quantity of port wine and water may be allowed. The drinks should never be given iced, or even quite cold.

During recovery the appetite often increases before the digestive organs recover their tone; therefore great caution must be used, so that not more than a very moderate quantity of food is taken, or a severe relapse may probably be the consequence.

[If the measures recommended above are not successful, pills composed of ipecacuanha, blue pill, and opium (Recipe 44) should be procured from the chemist, one of which should be given every three hours. The pills should be continued until a metallic taste or slight soreness of the gums is experienced, when they should be stopped, and Dover's powder, quinine, ipecacuanha (Recipe 39), given instead. In *very bad* cases of dysentery occurring in *young robust* subjects, and which are not benefited by the ipecacuanha treatment, it may be desirable to use calomel and opium (Recipe 43) instead of blue pill and opium. The unnecessary use of calomel should, however, be carefully avoided. It is only advised on the failure of other measures as above noted. Laudanum should also be procured, thirty drops of which should be added to each warm-water injection, recommended in the large type.

A good medicinal tonic during convalescence will be found in the nitric acid and orange-peel mixture, Recipe 24.]

DYSENTERY, CHRONIC.—Chronic dysentery may commence as such; that is, a minor degree of dysentery than that described above may occur, and, without assuming any violent form, destroy the health of the patient. But chronic dysentery more frequently results as a sequel of the acute form. It very often happens after a severe attack of dysentery that soreness remains in some parts of the bowels, while the stools are occasionally slimy and bloody, alternating with constipation for a day or so; and there is considerable and increasing debility, with perhaps a tender scorbutic condition of the gums. Under such circumstances the repeated application of mustard poultices or mustard leaves over the tender part is advisable. The bowels should be regulated by small doses of castor oil, constipation being strictly guarded against. When the bowels are *not* constipated, astringent medicines of various descriptions should be employed. In the absence of the remedies mentioned in the small type below, Recipe 38 may be taken at night, and Recipe 58 three times a day. If the ipecacuanha in Recipe 38 causes too much nausea or sickness, it may be omitted. If there is *alternate* looseness and constipation, it will be better to trust to diet and castor oil, and not to take astringents; but in any case, both the decoction and syrup of the Indian bael fruit (*vide* p. 20) may always be tried, as the bael possesses both astringent and slightly aperient properties. Or the bael not proving efficacious, decoction of pomegranate may be used made with either milk or water (*vide* p. 24). During chronic dysentery it is also necessary to examine the gums frequently, and if they are found tender, spongy, swollen, or inclined to bleed, thus showing evidence of a scorbutic taint in the system, lime juice should be given daily (*vide* SCURVY, p. 269). This should not be neglected, scurvy with dysentery being a serious complication.

In all cases of chronic dysentery the diet should consist chiefly of soup, broth, rice, sago, arrowroot, or flour and milk well boiled together, seasoned with sugar and spice. Generally a little port wine may also be allowed. A flannel belt should be worn round the bowels, and the feet kept warm by woollen socks.

Many cases of dysentery are, however, little benefited by medicines, and resist all treatment. In such cases a thorough change of climate, or at the least a sea voyage, affords the only chance of recovery. If a patient with chronic dysentery is living in an extraordinarily malarious country, then probably no treatment will prove of benefit until he is removed from the influence of such an atmosphere, after which he may begin to improve.

[Other astringent prescriptions for chronic dysentery are Recipes 62 and 63; the first most useful if scorbutic taint exists.]

DYSENTERY IN CHILDREN.—The disease in children is frequently obstinate and intractable, and is marked by the same symptoms, as the passing of mucus, slime and blood, and by the pain and straining characterising the affection in adults. At the commencement some degree of fever generally prevails. If constipation has preceded the attack, it will be best to commence the treatment with a small dose of castor oil; but if the child has not been previously costive, no laxative medicine should be given. If the child is not more than six months old, a quarter of a grain of ipecacuanha powder should be given every three or four hours. If the child is more than six months old, one grain of ipecacuanha may be given; if more than one year old, two grains. If the symptoms persist after two days, Dover's powder should also be given night and morning in the proportion of one grain for a child above six months old, and one grain and a half for a child above one year old. Warm linseed-meal or bran poultices, or, if available, spongio-piline warmed with hot water, or the india-rubber hot water bag (*vide* p. 492), should be frequently applied to the bowels; and if the child has much straining, starch injection may be used (Recipe 104). If the teeth are causing irritation, the gums must be lanced; and if worms are present, santonin (*vide* p. 343) may be given, but without any purgative. If the infant is suckling, change of the nurse may perhaps be advisable; and for those beyond that age, the food should consist of sago, arrowroot, bread and milk, chicken or mutton broth, and tea. The bael fruit is sometimes beneficial in obstinate cases. The dose of the decoction of bael made as detailed at page 20 is a tea-spoonful for a child one year old; of the syrup of bael made as there mentioned, a little less. When the stools become more natural, two, three, or four minim doses of chlorodyne, according to the age of the child (*vide* p. 9), may be substituted for other medicines to moderate any remaining looseness. When this ceases, one or two-grain doses of quinine will be desirable for some days. Great care should be taken for some time to examine the stools of the child, in order to discover if undigested morsels of food pass; and if so, the diet should be altered.

[The above means not proving successful, Recipes 64 and 65 should be obtained and tried in succession.]

DYSPEPSIA or INDIGESTION.—Dyspepsia, in one or other of its numerous forms, is very common in India, sometimes occurring as simple dyspepsia, unconnected with any other malady; at other times as the result of disease of the liver, the kidneys, or the bowels. Unless secondarily resulting from such maladies, dyspepsia is generally caused by errors in diet, especially by over-feeding and over-drinking, or by excessive smoking, by neglect of exercise, by sedentary occupations, by irregular meals, or by bad teeth rendering the person unable to masticate his food thoroughly. Taking too much drink in the form of hot weak liquid, as tea, coffee, or *congee*, is also liable to induce dyspepsia. In India, moreover, prolonged residence tends to induce that debility of the nervous system of which dyspepsia is a very prominent characteristic.

Dyspepsia, or indigestion, as the terms imply, is a loss of power in the stomach to fulfil its office, arising in most instances from irritation of the inner coat of the stomach, or even from chronic inflammation of that part. Its secretion, called the gastric juice, is deficient in quantity or altered in quality. Abnormal acids are thus generated, and the nerves of the stomach become sensitive and the seat of uneasiness or pain. There is also a loss of nervous or vital power in the stomach, as well as the derangement of the chemical process through which food must pass to form healthy blood. Hence various theories advanced in explanation of dyspepsia may all express correct, though partial views of the subject.

The symptoms of dyspepsia are as follows:—Pain, in some varieties of the affection felt when the stomach is empty, in others when it is full. It is usually gnawing pain, but is sometimes sharp and cutting. It varies much in degree, sometimes being simply an uneasy feeling; occasionally amounting to agony, and producing faintness. The explanation of the pain is this: the stomach, weakened and irritable, cannot change the food put into it, which therefore acts as a foreign body. It acts, indeed, much in the same manner as any substance on the eye, the internal coat of the stomach being, in diseased conditions, as sensitive as the eye itself. In slighter cases of dyspepsia the pain may be felt in the chest, not in the stomach, or the feeling experienced may not be actual pain, but a sense of fulness and oppression about the chest. Want of appetite, or irregularity of appetite, is always more or less present. In health the desire for food is correspondent with the wants of the system; but when the stomach is weak, the appetite becomes capricious and variable, and is, therefore, not a safe guide as to the quantity and quality of the food to be taken. Heartburn, flatulence, sour eructations, water-brash (as described below), nausea and vomiting, headache, furred tongue, and diarrhœa alternating with constipation, are also more or less present. If dyspepsia continues long unrelieved, the nervous system becomes implicated, and the person, having sleepless nights, becomes tired, despondent, gloomy, depressed, and may also suffer from palpitation of the heart. Very often, also, the patient is strongly impressed with the erroneous idea of the existence of some severe organic disease, especially of the liver or of the heart.

The symptom of dyspepsia mentioned above, called *Water-brash*, or *Pyrosis*, is sufficiently peculiar to require special notice, as, although generally occurring in combination with other signs of indigestion, a patient is sometimes troubled with *water-brash* only. The affection is characterised by a burning sensation at the pit of the stomach, and a sense of constriction, as if the stomach were drawn towards the back, followed by the eructation of a considerable quantity of thin watery fluid, which is frequently tasteless, but sometimes sour, and often described by the patient as being cold. It occurs in paroxysms, which usually come on in the morning or forenoon, when the stomach is empty. After the discharge of the fluid the pain lessens and gradually disappears. *Water-brash* seems to be due in a great measure to indigestible food, and to the too free use of spirits.

Treatment.—The treatment of most forms of dyspepsia is more dietetic than medicinal. The quantity of food which can be dissolved by the secretions of the stomach (gastric juices) and intestines being limited, this quantity cannot be exceeded with impunity, and moderation must therefore be enjoined. Persons affected with indigestion should change their food and adopt a system of diet. Moreover, the meals should not succeed each other too rapidly. The stomach should have time to perform one task before another is imposed on it. Six hours may be mentioned as an appropriate time which should intervene between any two meals taken by a dyspeptic person.

With regard to the nature of the food best suited for dyspeptics, it may be safely asserted that a mixture of well-cooked animal and vegetable food is in general more easily digested than a large proportion of either kind, or than one or the other taken exclusively. Mutton, fowls, and game are the most digestible kinds of animal food; pork and all cured meats, such as salted beef, ham, tongue, should be avoided. It is a vulgar error that 'underdone' meat is easiest of digestion. It contains, perhaps, more nourishment, but requires a healthy stomach to digest it. Raw vegetables, especially cucumbers, should be prohibited. Often it is also desirable to avoid potatoes, puddings, pastry, sweetmeats, fruit, sugar, or even bread if not toasted. It is well known how readily sugar, and food containing sugar, run into fermentation, and they are, in the same degree, difficult to digest. In most cases dyspeptic persons would do well to avoid all stimulating drinks, although in some instances a little cold weak brandy and water, or a glass of sound sherry, or a little ale, may be taken with advantage. Large draughts of tea or similar fluids are not advisable for dyspeptics; although in certain instances of what is called 'a fit of indigestion,' when some article taken will not pass through the stomach, and induces nausea and sickness, a draught of water or tea may often relieve the uneasiness. But on all points of eating and drinking, a sensible patient will be mainly influenced by his own experience.

In most varieties of dyspepsia 'drugging' should be avoided. Care, caution, and self-denial are better for dyspeptics than medicines; and each person should be aware, better than the physician can advise, what particular articles of diet will agree or will not agree with him.

[With such care in diet, prominent symptoms may be best relieved as below.

Pain, nausea and vomiting may be relieved by chloroform, camphor, ether, or ammonia (Recipe 66 or 68). Ten or twelve drops of spirits of camphor in an effervescing draught is often an effectual remedy. In intense vomiting from dyspepsia, the amount of food taken should be reduced to the lowest possible limit. A table-spoonful of milk mixed with lime water will often remain on the stomach after other things have been rejected. When heartburn is the prominent symptom, ten grains of bicarbonate of soda, or ten grains of prepared chalk, in a table-spoonful of water, will afford relief. There is no better remedy for flatulence than peppermint water; or, if flatulence is combined with pain, a tea-spoonful of sal volatile in a wine glass of camphor mixture may be taken with advantage. Loss of appetite may be remedied by the employment of bitters, such as quinine, or of mineral acids, or of both combined (Recipes 20, 24). Constipation may be removed by laxatives, as Recipes 12 and 13; or by the use of brown bread, or occasionally by ripe fruit. Costiveness may also often be prevented by the plentiful employment of salt as an article of diet, and by active exercise. A favourite remedy for costiveness with dyspepsia, at hydropathic establishments, is the use of a cloth wrung out of cold water and applied to the belly. This is called an *abdominal compress*, and is worn under a bandage of macintosh cloth, to keep the moisture from escaping. It is generally recommended to be used for two or three hours in the earlier part of the day. The 'sitz-bath' may also be often taken with advantage. A tumblerful of cold water drunk at night before going to sleep, and another in the morning on rising, will relieve dyspeptic constipation in some habits.

In simple dyspepsia, arising from debility of the stomach, unconnected with other maladies, but when even a carefully regulated diet does not relieve the sense of oppression following meals, the substance known as *Pepsin* often does much good. This medicine may be purchased from all druggists, and eight or ten grains may be taken either before or with the meals, in the same manner as common salt, to which its taste bears a resemblance.

The condition described above under the name 'water-brash' usually disappears under a well-regulated diet, aided by mild aperients. In many cases ten or twelve grains of alum, taken in an ounce of water three times daily, is very beneficial.]

EAR, DISEASES OF THE.—The diseases of the ear which it is desirable to notice are: 1. *Accumulation of wax in the ear*; 2. *Earache*; 3. *Inflammation of the external ear*; 4. *Inflammation of the internal ear*; 5. *Deafness.*

1. ACCUMULATION OF WAX IN THE EAR.—This often causes more or less deafness. In such cases the wax may be seen through an ear speculum (a conical tube with bright interior which reflects light into the ear), or often with the naked eye. The ear should be gently syringed with a little warm water, which will soften and expel the wax. A drop of salad oil should then be dropped into the ear, and cotton wool should be applied to prevent cold afterwards.

2. EARACHE.—This complaint is in reality neuralgia of the ear. Its causes are those of neuralgia generally (*vide* NEURALGIA), or it occurs from blasts of cold air, or from incautious use of cold water for bathing. But it sometimes arises from a decayed tooth, and in children from cutting the teeth, or from the growth of the second set; or sometimes in adults from the passage of the wisdom teeth. Earache causes very severe pain, shooting over the head and face. It is distinguished from the pain attending inflammation of the ear by the suddenness of its occurrence, by the absence of fever, and by its not being attended with 'throbbing.' Earache in infants is sometimes difficult to distinguish from 'belly-ache.' This may be known by the former being more continuous, without the intervals of freedom occurring when the bowels are affected. Also by the child putting its hand to its ear, and not drawing up its legs, as it would do from bowel-ache.

Treatment.—The treatment in adults consists in the administration of a purgative dose (Recipes 1 and 2) followed by quinine (Recipe 18). As local applications, a small mustard poultice may be applied behind the ear, or, if practicable, Recipe 90 may be obtained and rubbed in behind the ear. The ear should also be bathed with hot water frequently and kept warm. If the wisdom teeth are appearing the gums may be lanced, and carious teeth should be protected by stopping. If the pain is great, a dose of chloral (Recipe 75) may be taken at night. In children, if the teeth have not all appeared, the gums may require lancing, and a senna purgative (*vide* p. 25) may also be desirable. A bag of hot salt may also be applied to the ear, or it may be fomented with hot water in which poppy heads have been steeped. A roasted onion enclosed in a muslin bag is a favourite domestic remedy, which should be applied as hot as it can be borne to the ear. Cold applications should be avoided.

When earache is intermittent, that is, occurring at regular intervals of hours or days, quinine should be given in doses proportionate to the age of the patient.

3. INFLAMMATION OF THE EXTERNAL EAR.—This may either attack the external passage, and, proceeding inwards, or commencing within, may affect the internal part of the ear. Inflammation of the external ear is attended with smarting pain, and the discharge of matter of a thin yellowish description. It is very frequent in children while teething; it often accompanies various skin diseases; it may be a sequel of any weakening illness, or the result of foreign bodies lodging in the ear. If from the latter cause the foreign substance must be removed (*vide* FOREIGN BODIES IN THE EAR, Chap. III. p. 395). If from teething the gum should be lanced. In any case the discharge should be gently washed away twice or thrice daily by syringing with warm water, and after the syringing an astringent lotion (Recipe 97) first made slightly warm may be carefully injected. Probably a pur-

gative, and nearly always tonics, as quinine and iron, will be advisable.

4. INFLAMMATION OF THE INTERNAL EAR.—This is a more serious disorder. The pain is of an acute *throbbing* character, attended with high fever, and sometimes in children with delirium. It may occur unconnected with any other malady, as the result of cold; or it is sometimes the result of extension of inflammation from the throat, or is a sequel of scarlet fever. Deafness very soon occurs, and after the *throbbing* pain has continued for some hours or days, the drum of the ear generally bursts, and matter escapes. When this occurs the internal structure of the ear is often destroyed, and permanent deafness is the consequence.

Treatment.—This should be prompt. Leeches should be applied behind the ear, to the number of one moderate-sized leech for each year of the patient's age; purgative medicines should be administered (Recipes 1, 2); and fomentations should also be applied to the ear, but it will be best not to use a syringe except under medical advice, which, if practicable, should always be obtained for this affection.

[If there is no doubt that the attack is one of inflammation of the internal ear, it will also be desirable to procure calomel and opium pills (Recipe 43), which should be given to adults. For children, calomel without opium in doses of one-sixth of a grain three times daily. The calomel and opium should be stopped in adults immediately any metallic taste in the mouth or soreness of the gums is perceived. In children it should not be continued if green spinach-like stools appear.]

5. DEAFNESS.—Deafness occurs in every degree, from mere dulness of perception of sound to absolute insensibility. As already stated, it may depend simply on accumulation of wax, or on inflammation and its consequences, or on enlarged tonsils, in which cases, if remediable, it can only be treated by the means prescribed for such conditions. In other cases deafness results from some affection of the nerve of the ear, and is called 'nervous deafness.' Such deafness may be

caused by blows, falls, violent noises, explosions, or any kind of concussion. Or it may be a sequel of certain diseases believed to leave a poison in the system, as scarlet fever, measles, typhus, malarious fever. It sometimes comes on after great mental excitement, or from taking quinine in large and continuous doses. It may be a consequence of debility, and is then often accompanied by ringing, singing, hissing, or other unnatural noises in the ears. Lastly, it may be connected with disease of the brain.

Treatment.—Regard must be paid to the species of deafness. The most generally useful local means of relief are counter-irritants behind the ears, such as iodine paint or blisters. When deafness arises from enlarged tonsils, it is sometimes necessary to remove them by surgical operation. Deafness from simple nervous debility requires tonics and generous diet. There are a variety of instruments, under the name of cornets, trumpets, ear tubes, &c., which render deaf persons able to hear better by concentrating and intensifying the impulse of the waves of sound into the ear. In all cases of deafness the advice of a medical man should be early sought.

ECZEMA, or RUNNING SCALL.— *Vide* SKIN DISEASES, p. 279.

EPILEPSY.—Epilepsy is commonly called 'The Falling Sickness,' or, more vulgarly, 'Fits.' After a short warning, consisting perhaps of headache, or pain in the limbs, or spasms of the face, or of a limb, the patient is seized with loss of consciousness and loss of power, so that if standing he immediately falls to the ground. Or secondly, he may fall without any previous warning. The fit is generally preceded by a loud cry, and consists of strong convulsive movements of the limbs and trunk, together with spasms of the muscles of the face and eyes, producing various distortions of the countenance. The brows are knit, the eyes fixed and staring, or turned up beneath the lids, so that only the whites can be seen. The hands are clenched and the arms tossed about. The breathing is difficult, the face red, and foam (often bloody from the tongue being bitten) issues from the mouth. The fæces and urine are often expelled involuntarily. After the convulsions have continued from one to two, five, or even ten minutes, the patient becomes motionless, and generally sinks into a profound sleep. Such fits of a greater or lesser degree of violence may occur almost daily, or at intervals of months, or even years.

The causes are various. The disease may be hereditary, or it may be connected with excessive mental or bodily excitement, or with disease of the brain. In those subject to epilepsy the malady will be excited by debility, dissipation, fright, passion, worms, plethora, indigestion, and the stoppage of accustomed discharges, as the monthly flow of women.

Epilepsy may be distinguished from hysteria by the total loss of consciousness, by the distortions of the face, by the solitary cry *preceding*, and the dead sleep *succeeding* the fit; none of which signs are characteristic of hysteria. Epilepsy may be distinguished from apoplexy by the *absence* of 'puffing' or *stertorous* breathing, and by the *presence* of the *continuous* convulsions marking epilepsy.

Treatment.—During the fit, the patient must be prevented injuring himself, by the limbs being firmly held. The neck and chest should be bared, the cravats, stays, and all tight strings or garments about the body being loosed. To prevent the tongue being bitten, a piece of soft wood or linen pad, too large to slip into the mouth, should be placed between the teeth. Nothing should be given or offered to drink for fear of injuring the mouth. The temples may be bathed with vinegar during the fit, or, if the head is hot, a stream of cold water from the spout of a kettle may be gently poured on the forehead. After the fit the patient should be allowed to sleep, but if the patient does not sleep and appears much depressed, a stimulant, as a glass of wine, may be allowed.

In the intervals between the fits, temperance, exercise, occupation, spare living, and the avoidance of all bad habits should be enjoined. Constipation, worms, and too full a condition of system, if present, should be appropriately treated. If the patient is a female, the condition of the 'monthly flow' should be inquired into, and medicines given to correct any irregularity of this function. If the patient is weak and irritable, tonics will be required. As a general rule, the following advice may be safely taken by epileptics. Keep the bowels gently open, the head cool, the feet warm, the mind easy, never wear tight clothing, and avoid intemperance and indigestible articles of diet. The epileptic tendency may sometimes be successfully combated by the systematic use of an exclusively vegetable diet, or by a very considerable reduction in the proportion of animal food.

[During the intervals between the fits bromide of potassium should be taken in full doses. To begin with, the patient ought to have ten grains three times a day in two ounces of pure water, the dose being increased at the rate of two grains every three days up to thirty grains. This does good in a majority of instances, although in some it does not. In such cases the physician would probably prescribe strychnine or nitrate of silver. But these latter agents require great care, and should not be used unless under the immediate supervision of a qualified medical attendant.]

ERUPTIONS.—Eruptions are of different kinds, and those of one class mark various kinds of fevers, which are, therefore, frequently termed *eruptive fevers*. Under this term are comprised typhoid fever, dengue fever, typhus, chicken-pox, measles, scarlatina, small-pox. Eruptions also occur without febrile symptoms as purely skin diseases, either connected or not with syphilis. The different eruptions are described under the headings of the various maladies of which they are part, or under the head of SKIN DISEASES.

ERYTHEMA or THE BLUSH.—*Vide* SKIN DISEASES, p. 272.

ERYSIPELAS.—Erysipelas is often called 'St. Anthony's Fire.' This disease is an inflammation of some portion of the skin. It may be caused by cold, or it may proceed from constitutional debility, or be excited by the impure air of hospitals or gaols. Erysipelas is most common on the face, which becomes red and swollen, the redness disappearing for a few moments on pressure of the part with the finger. There is fever, with severe burning of the part, on which at length small blisters may form, discharging a yellow fluid. In more severe cases, abscess may result in or beneath the skin. If the disease passes inwards towards the brain, it may prove rapidly fatal.

Erysipelas frequently attacks wounded parts, or parts which have been subjected to surgical operation, when the surface of the surrounding skin, or even of the whole limb, becomes red and swollen as above described.

Treatment.—The part affected should be covered with lint soaked in tepid water, over which oiled silk should be laid, or the inflammation may be dusted with flour, which is often found very soothing; or if neither of these applications relieve the stinging pain, salad oil may be tried. A purgative, as sulphate of soda (Recipe 2), or castor oil, will generally be required at first, after which the strength of the patient must be supported by nourishing diet, by an allowance of brandy and wine, and by the administration of quinine (Recipe 17) every three hours. If blisters form, they should be pricked for the water to escape. Matter forming will generally require lancing of the skin over the part where it presents. As a general rule, when erysipelas attacks a wound or injured part it should be poulticed.

Of all the predisposing causes of erysipelas, deficient ventilation is probably the chief; and therefore the greatest care must be taken to admit fresh air, without draughts, into the apartment. When erysipelas attacks wounded or injured parts, ventilation is of still greater consequence. Unremitting attention should be paid to the cleanliness of the patient, and everything about him. The bed linen ought to be frequently changed, and not be allowed to remain when soiled by discharge. The motions should be at once removed, and a solution of sulphate of iron (the *Heera-kusees* of the bazaars) or carbolic acid should be poured into the bed pan. The part affected should not be wiped with a sponge but with cotton wool, which should be immediately burned or buried. The patient's bedroom should be emptied of all but indispensable articles of furniture, and bed curtains should be at once removed.

[In most cases of erysipelas it will also be desirable to give some preparation of iron, and Recipe 22 may be procured and given *with* the quinine.]

EYE, DISEASES OF THE.—The diseases affecting the eye or its appendages of which it is desirable to treat in a work of this description, are: 1. *Stye*; 2. *Ophthalmia*; 3. *Ulcer of the cornea*; 4. *Iritis*; 5. *Cataract*; 6. *Spots before the eyes*, or *Muscæ Volitantes.*

STYE.—This term is applied to a small painful boil at the edge of the eyelid. It should be frequently well fomented with hot water, or with hot milk and water, permitted to come to a head, and then pricked with a lancet to let the matter out. If an eyelash grows from the stye, the hair should be plucked out with a pair of pincers. Stye generally depends on indigestion.

OPHTHALMIA.—This term implies inflammation of the surface of the eye. There are several varieties, marked by a greater or less degree of violence. In mild cases the inflammation may not extend beyond the surface of the white of the eye, which is injected with red vessels, running in *different* directions, and not straight from the centre towards the circumference, as described under IRITIS, or *inflammation of the iris.* There is also pain, and a feeling as if sand or grit were in the eye. There is intolerance of light, and the eye is watering and weak, and, particularly in children, obstinately kept shut. There is also pain in the forehead or head generally, and often some feverishness. There is a discharge from the eye, which is at first clear and thin, but afterwards thicker and of a white colour. During sleep this discharge collects at the edge of the lids and dries there, gluing together the eyelashes, so that the person finds a difficulty in opening the eyes after sleep without first bathing them with warm water. One or both eyes may be affected. Or one may be affected first, and the other afterwards. It often results from cold, but when once formed it is infectious, sometimes attacking whole families. Therefore in all cases of ophthalmia the greatest care should be taken that towels, soap, water, &c., are not used in common. The duration of the disease may be a few days, or several weeks.

Treatment.—This consists in keeping the patient in a darkened room with a green shade over the eyes, bathing the eyes frequently with hot water, or with hot milk and water; or using an alum lotion (Recipe 97) if, as sometimes happens, the hot water is not acceptable to the feelings of the patient. A purgative (Recipes 1 and 2) should also be administered if the bowels are confined. When there is much discharge and the eyelids are swollen, red, and inflamed, fomentation with hot water in which broken poppy heads have been steeped often affords much relief. If there is persistent pain, a leech or two may be applied to each temple at the margin of the hair. The edges of the lids should be anointed every night with salad oil or glycerine. The diet should be light but nourishing.

PURULENT OPHTHALMIA is the term applied to a very severe variety of the disorder, which may result from similar causes, or which may originate from neglect of simple ophthalmia, or otherwise from noxious matter (as the discharge passed in gonorrhœa) being introduced into the eyes, either from using dirty cloths or otherwise. The inflammation in this disease is very severe, the whites of the eyes are so swollen that the middle of the eye or cornea is almost hidden, and the pain is very great. Instead of a watery or slightly white discharge, yellow matter is secreted which escapes from the eye in considerable quantities. In some cases, the inflammation attacks the deeper parts of the eye, and the organ is destroyed. Purulent ophthalmia often occurs during small-pox. This malady is highly contagious, and spreads occasionally throughout the inmates of houses, schools, or barracks when there are faulty hygienic conditions. The duration of the malady may be from ten days to two or three weeks; but it often leads to other affections of the eye, as *ulcer of the cornea* (*vide* page 148), or to a rough and irritable condition of the inside of the lids, known as *granular conjunctiva,* either of which ailments may prolong the illness for months.

Treatment.—The eye should be well washed and fomented every two or three hours with hot water in which poppy heads have been steeped, and care should be taken that the disease is not communicated, by cloths or otherwise, either to the other eye, if sound, or to the eyes of attendants. The face should be kept clean, and the eye or eyes affected should be covered with cotton wool and a light bandage. The cotton wool should be frequently removed and burnt. The patient should be kept in a darkened room, and the bowels should be opened, if necessary daily, by Recipes 1 and 2. When the pain and inflammation are great, it will be desirable to apply five or six leeches to each temple; a measure adopted to allay local irritation, not to weaken the patient. The edges of the lids should be smeared nightly with salad oil to prevent them sticking together; and if the discharge appears to harden under the lids, the nozzle of a glass syringe, charged with tepid milk and water, should be carefully and gently inserted between the lid and the eyeball, taking care not to press on the latter, and its contents made to pass quickly over the internal surface of the lids. As the fluid escapes it carries with it any matter which by prolonged retention would tend to aggravate the disease.

The most useful internal remedies are quinine (Recipe 17) as a tonic, and chloral (Recipe 75) to allay pain. When the first violence of the inflammation has subsided, it will be proper to wash the eyes very frequently with an alum lotion (Recipe 97), some of which should be permitted to fall into the eyes (as described below) several times daily. The subjects of purulent ophthalmia are often of naturally feeble constitution, or are debilitated by prior ill health, or from other causes. The strength, therefore, should be maintained by good but easily digestible food, and a little wine may be generally allowed.

[When the remedies as above do not prove satisfactory, blisters should be applied alternately behind the ears and to the temples; and a solution of nitrate of silver, of the strength of ten grains to an ounce of water, may be obtained, a drop of which should be dropped in the eye from a quill or brush twice daily. It is a painful application although often very serviceable. It is also sometimes necessary to lance the inflamed eye in order to prevent more serious mischief. The malady is therefore one urgently demanding skilled advice.]

How to foment the Eye.—Place the fluid in a large basin, hold the head over it, dip a piece of lint or soft linen rag in the fluid, and without pressure apply the fluid freely to the eye. This should be continued for several minutes; then lay the patient on his back, open the eye, and squeeze the wet rag over it so as to allow the fluid to run into the eye. This simple method is more satisfactory than the use of glasses or apparatus sold for the purpose.

How to apply Lotion to the Eye.—A camel-hair brush, or a quill cut oval-shaped, may be used. Fill the brush or quill with the lotion, draw down the lower lid, and let the fluid drop into the eye. In order to get the fluid well within the upper lid, move the latter up and down, and the whole surface will be wetted. The brush or quill should be washed in warm water after use.

ULCERS OF THE CORNEA, or central part of the eye, often result from neglected ophthalmia, and particularly from ophthalmia (even sometimes in spite of treatment) occurring in scrofulous children. In such cases, while the white of the eye presents the injected appearance above described, one or more red vessels may be seen stretching from the margin towards the centre of the cornea or middle of the eye, in some part of which a small rough-looking, or white-coloured spot will be discovered; there is also much intolerance of light and watering of the eyes. In bad cases several of these little white spots may form, which are, in fact, ulcers of the part. If the case proceeds favourably, the white of the eye loses its injected appearance, the red vessel or vessels on the cornea disappear, and the ulcer gradually heals, often, however, leaving a white spot or film, which may or may not also disappear during the next few weeks or months. When the disease has been very severe, and does not progress favourably, a large white film is left on the cornea, interfering very much with sight. In still worse instances, the cornea is quite converted into a white mass, and the person cannot see at all.

Treatment.—When ulcer forms, the treatment should be very decided. A darkened room must be insisted upon, and the eyes should be assiduously fomented with poppy water, until the inflammatory redness of the white of the eye has almost disappeared. Then the essential point in the treatment will be the improvement of the general health. The diet should be nutritious, and a little wine should be allowed. Quinine should be given, and exercise short of fatigue should be taken in the open air, the eyes being well protected from light and glare.

[During the earlier stages of ulcer of the cornea, a solution of atropine (atropine two grains, water one ounce) should be if possible obtained, and a drop should be dropped into the eye once or twice a day. Blisters should also be obtained and applied, alternately, behind the ears, and to the temples. Iodide of potassium (Recipe 45) should be given internally. In the latter stages it may also be advisable for the ulcer to be *very lightly* touched, every second day, with a very fine pencil of nitrate of silver. But this is an operation requiring great care and delicacy of touch, and should only be performed by those well aware of the properties of nitrate of silver, and of the appearances rendering its application desirable.

For a child of three years old, with ulcer of the cornea, two grains of iodide of potassium three times a day, and Recipe No. 16 if the bowels are confined, would be an appropriate prescription, which should be continued for a week. But in some cases *occurring in scrofulous children*, tonics, as iron and quinine, are necessary from the first. If possible, the advice of a medical man should be obtained.]

IRITIS.—Iritis is inflammation of the 'iris,' or that part of the internal eye in which the round ring of the pupil is formed, and which gives the various colours of the eye. In this disease, while the white of the eye is injected, by red vessels running from the middle towards the circumference in generally straight lines, the cornea or centre of the eye is clear. *Through this* can be seen the 'iris,' which becomes discoloured, reddish if naturally dark, greenish if naturally blue. Afterwards a white deposit takes place, and the pupil may be thereby blocked up. There is always intolerance of light, and severe stinging pain of the eye and forehead, with general feverishness. The causes of the iritis may be, injuries, over-exertion of the eyes, venereal disease, or perhaps a gouty condition of the system.

Treatment.—In the absence of the necessary medicines, as referred to in the small type below, and which are not carried in the companion case to this volume, the eyes should be protected from light by a green shade and darkened room, and fomentation with hot poppy-head water should be frequently applied. If necessary, the bowels should be relieved by purgatives (Recipes 1, 2), six or eight leeches should be applied to the temple of the affected eye, and chloral

(Recipe 75) may be given at night to relieve pain. If the disease has occurred to a debilitated person, or to one who has suffered from rheumatism, or gout, or who is scrofulous, Dover's powder may be given at night and small doses of quinine (Recipe 18) three times daily.

[The advice of a medical man, or that impossible, the following remedies, should be obtained immediately. For a patient of fairly good constitution, who is not rheumatic, scrofulous, or debilitated, calomel and opium pills (Recipe 43), which should be given until there is a metallic taste in the mouth, or until the gums are slightly tender. Under the influence of the mercury the deposit will be seen to break up and disappear, leaving the pupil clear. But if the patient is debilitated or rheumatic, iodide of potassium (Recipe 45) should be substituted for the calomel. In all cases a solution of atropine (atropine two grains, distilled water one ounce) should be dropped into the eye twice or thrice daily. This medicine dilates the pupil of the eye, and tends to keep it clear of deposit. If calomel is given as above, when it is discontinued, iodide of potassium mixture should be commenced.

If the patient is debilitated from any cause, liberal diet and tonics will be necessary, after subdual of the primary inflammation.]

CATARACT.—Cataract is a degeneration of the part of the eye called the 'lens.' It most frequently occurs in elderly people, and one or both eyes may be affected. In the healthy eye the *lens* cannot be seen, but when cataract occurs it assumes a white or bluish-white appearance, and may be detected through the pupil or circular central opening of the eye. Cataract may be months or even years forming. It must be distinguished from a white deposit on the front of the eye called 'opacity of the cornea,' and resulting from ophthalmia or inflammation. Surgical operation is the only cure for cataract.

SPOTS BEFORE THE EYES, OR MUSCÆ VOLITANTES.—Persons of sedentary habits or delicate constitutions, especially if they are in the habit of writing or reading much, or otherwise exercising their sight on minute objects, are liable to suffer from spots before the eyes in the shape of black motes, or grey films, or an appearance something resembling spiders' webs.

In some cases small circles with central spots are apparent. Such impediments to vision are more perceived when the sky or some white object is looked at. They often first occur very suddenly, and may be the cause of much uneasiness, as it may be thought they are significant of some serious disease. But as a general rule this is not the case, although they sometimes occur as the forerunner of *Amaurosis*. Frequently they are symptomatic of indigestion, or if not caused by indigestion they are more apparent or troublesome when the stomach or liver is out of order. They often continue without increasing for many years.

Treatment.—Any particular employment which may seem to have caused the affection should be discontinued or pursued with less energy. Tonics, change of air, and rest to the eyes are the main remedies. The state of the digestion should be enquired into and any error appropriately treated. Care should be taken not to wear tight cravats or collars, and the person affected should not read at night, or when lying down.

If the spots increase, or are very annoying, or if they are accompanied by weakness of sight, blue spectacles may be worn, of a lighter or darker shade, according to the degree of protection required. Blue spectacles are better than either brown, smoke-coloured, or green. Green spectacles protect the eyes only from red rays; while brown or smoke-coloured glasses intercept all rays equally, thus rendering vision indistinct. But blue glasses intercept only orange rays, which are the most intolerable to a sensitive eye.

FAINTING or SYNCOPE.—This condition may occur from numerous causes. It may result from loss of blood, as from a wound, or from fright or sudden shock to the system; it may be produced by a blow on the stomach, or by intense pain; or it may be connected in women with irregularities of the 'monthly flow.' A person in a deep faint is pale, unconscious, with feeble pulse, dilated pupil, flaccidity of the limbs, and a death-like expression of countenance. In such a condition the body should be *at once* placed in the recumbent position, the head even being allowed to hang down lower than the body, cold water should be dashed on the face and cold air admitted into the room, or the person should be taken out of doors. The limbs should be well rubbed, and smelling-salts may be held to the nostrils. It is not, however, right to use very strong stimulating vapours, as injury to the nostrils may arise therefrom. A burnt feather held smoking under the nose is a better remedy than ammonia. The subsequent feeling of painful languor will be relieved by the use of wine in moderate quantities. For the *prevention* of a fainting fit, nothing is better than lying down at full length, without a pillow under the head.

FAT, ACCUMULATION OF.—Europeans in India, and indeed Natives, are often observed growing very stout, and sometimes this increase of size occurs rather suddenly, not only giving rise to inconvenience, but sometimes even constituting disease. The cause is, probably, too much fat-forming food, and too little exercise at that period of life when the accumulation of a little fatty material may be regarded as natural. When the fat is equally distributed about the body, no immediate disadvantage may be experienced; but when it is accumulated in distinct parts, interfering with the functions of particular organs, its evil influence becomes apparent. The average weight of a healthy adult man in the prime of life, or from twenty-five to thirty-five, five feet in height, is 115 lbs., to which standard 5 lbs. may be added for every inch in height. For females, the average is somewhat lower. When persons weigh much above their height, they are growing fat, and there is a tendency to impairment of the powers, both of the muscles and of the blood vessels (arteries). The heavier man carries greater bulk, and his heart has to propel into a larger mass of tissue a larger amount of blood. Hence one form of evil, *viz.*, an overworked heart, resulting from accumulation of fat, and which is characterised by shortness of breath and sometimes by palpitation. In addition to this, fat may collect about, or in the substance of, the heart, giving rise to the malady known as *fatty degeneration* of that organ. This is marked by aggravated symptoms as above, and is generally accompanied by a peculiar appearance of the eyes, designated the *arcus senilis*, and known by a narrow opaque or whitish zone presenting near the margin of the *cornea* (or the circle of the eye where it joins the white). Fatty heart is a very dangerous malady, and any suspicion of such affection should lead to application for medical advice. All that need be said here is, that persons so affected should avoid *all* kinds of exertion, hurry, or excitement.

When persons are growing too fat, the great principle of prevention is, the avoidance of those articles of food which are known, when taken in excess, to produce obesity. Fat of meat, bacon, fat pork, white bread, potatoes, starchy food, as tapioca, rice, arrowroot, sago, sugar, beer, and wine, or spirits, must be interdicted, or at least taken in moderation. Brown bread, toast, biscuits, rusks, lean of any kind of meat, fish, fowl, or game, green vegetables, as cauliflower, asparagus, and lettuce, celery, fruit, and light wines, should form the diet. Even if the *régime* as above sketched cannot be strictly adhered to, attention to its leading principles will not only prevent accumulation of fat, but also lessen the amount present in the system. The change from one system of diet to another should, however, be made gradually. The sudden withdrawal of accustomed articles of food is unwise, and it is better to lessen gradually the fatty portions of the diet than to go to extremes. Moderate exercise, and care not to eat too much, will materially assist the dietary.

FEVER.—The following is a brief general description and definition of the term Fever. All varieties of fever are characterised by unnatural heat of skin, a quickened pulse, scanty and high-coloured urine, with great thirst. Such a condition is common in most diseases, and after injuries, when the person is said to be 'feverish.' But fever exists as a disease *per se*, or unconnected with any other malady. And of such fevers there are two great divisions: the one class marked by a continuance of the symptoms from the origin to the termination of the attack; the other class characterised by the more or less complete cessation of symptoms for a variable time, during which the patient may appear in good health.

Of the first variety, the fevers met with in India are *Simple Continued Fever*, *Ardent* or *Sun Fever*, *Typhoid Fever*, and *Typhus Fever*.

Of the second variety, *Relapsing Fever*, *Intermittent Fever* or *Ague*, *Remittent Fever*, *Masked Malarious Fever*.

SIMPLE CONTINUED FEVER commences with a chilly sensation, pain in back and head, languor, weakness and loss of appetite, quick pulse and heat of skin. Such symptoms may be caused by exposure to cold and wet, or even by indigestion or over-fatigue, and they may disappear under rest and a purgative. The fever is then often spoken of as *Ephemeral Fever*. But the malady may continue by the skin becoming hotter, the pulse quicker and the tongue dry. If this occurs, a bad attack of continued fever, or even of typhoid, may be suspected, and the treatment should be conducted as mentioned in the *para.* on the latter disease.

FEVER, ARDENT OR SUN.—This fever chiefly prevails in the months of April and May, and in seasons when the temperature is unusually elevated. It is by many authorities regarded as a form of *sun-stroke*, and by others as an aggravated form of simple continued fever. The attack is generally sudden, commencing with premonitory chills. There is great heat of skin and great thirst, the tongue is parched, red and dry, the pulse quick and strong; there is headache, flushed face, throbbing of the temples, restlessness, nausea, and bilious vomiting. The duration of the disease is about sixty hours, after which, if amendment does not take place, insensibility precedes death.

Treatment.—Leeches to the head, shaving the head, and the application of cold to the head, a darkened room, rest, quiet, and repeated purgatives (Recipes 1, 2), are the remedies required. In the latter stages, if great exhaustion occurs, it must be combated by ammonia, wine, brandy and water, and nourishing broths.

Fever, Typhoid.—The onset of typhoid fever is always very gradual and insidious. It commences with feelings of *malaise*, aching in the limbs, headache, loss of appetite, and chilliness. But for some days the sufferer is able to go about thinking there is not much the matter. Frequently the bowels are *relaxed from the first*, and the person may be supposed to have ordinary diarrhœa. At length the pulse, at first feeble, becomes quicker and full, the skin hot, and the tongue red and dry, and at about the end of the first week the patient takes to his bed. The fever when closely watched is now found to be slightly remittent in type, showing an *exacerbation* or increase in the afternoon, and a *remission* or diminution towards morning, although it never varies to the extent of true remittent. The temperature of the body rises from the first, and at the end of the first week may be in the evening from 104° to 105° Fahr., while the pulse varies from 100 to 120 per minute. The urine is scanty and high-coloured, there is increasing restlessness at night, the face is often pale with a pink flush on the cheeks, while the eyes are clear and bright. The diarrhœa continues, and the stools passed are thin and of a yellow colour, sometimes resembling pea-soup. If now the hand is pressed over the right side of the patient's abdomen, his face will probably express pain, and a gurgling may also be felt and heard under the fingers. Between the seventh and twelfth day, the peculiar eruption of typhoid fever appears on the chest, abdomen, and back; consisting of slightly raised rose-coloured spots, which disappear temporarily on pressure under the finger, and fade away in two or three days, being in the meantime succeeded by fresh crops. On the darker skin of the Native the eruption of typhoid fever appears very like flea bites. About the middle of the second week delirium comes on, at first slight, and only noticed at night, afterwards more constant, intense and noisy. The tongue becomes drier, red and glazed, and often cracks in various directions, while dry black crusts, called *sordes*, form on the teeth. The lips also crack and bleed. As the disease advances the patient loses flesh and strength, he lies prostrate and often unconscious of what is going on around him, and if the case ends fatally, he will become quite insensible, his temperature will rise higher, and he will pick and 'fumble' at the bed clothes. Dilated pupils, bleeding from the nose, hæmorrhage from the bowels, muttering delirium, are all unfavourable symptoms. In favourable cases the patient may improve about the end of the second week, when the remissions of the fever become more distinct, the diarrhœa lessens, the tongue cleans, the pains in the limbs cease, the patient sleeps at night, the temperature of the body decreases, and the appetite returns.

The temperature of the body should be frequently tested during the progress of typhoid fever, by the introduction of a clinical thermometer into the arm-pit. If the temperature rises above 105° Fahr. in the early morning, or above 107° at any time, recovery is rare. A sudden or irregular rise of temperature during typhoid denotes some local complication, probably in the lungs, which organs are very liable to become congested.

Typhoid fever may be further complicated, and rendered more dangerous, from the accompanying diarrhœa being very profuse and exhaustive. There may also be profuse hæmorrhage or bleeding from the bowels. Perforation of the bowel may also occur, between the twenty-fifth and thirty-second day; an accident attended with symptoms of *collapse*, and always proving fatal. Inflammation of the bowels may supervene, or the spleen or liver may become enlarged. There may also be intense gastric irritation, marked by incessant vomiting and irritability of the stomach, to which complication the term *gastric fever* has often been erroneously applied.

The duration of typhoid fever from the commencement of the premonitory symptoms is ordinarily from three to four weeks. When once originated the disease is communicable and may be contracted by other persons. Typhoid fever is more likely to attack young than elderly people. It is most contagious at an advanced stage, or during the third week. Typhoid is almost always found to be connected with defective sewage, or inefficient conservancy arrangements. The tainted atmosphere resulting from such conditions is, if not the actual cause, certainly the predisposing and localising excitant of the malady; and it acts more powerfully on those exposed to the injurious influences of overcrowding and defective ventilation.

Treatment.—The patient should be placed in a well-ventilated room without curtains or other impediments to perflation by the air. The light from the windows should be prevented falling on the patient's eyes, and all noises should be stopped. The bed should not be too soft, and an india-rubber sheet should be placed under the patient. He should not be allowed to exert himself at all, but should try and husband all his strength. The greatest cleanliness must be observed, and all *excreta* disinfected and removed at once, as recommended under CHOLERA. The back must be protected against bed sores by the judicious arrangement of pillows, or by air or water cushions; or by the application of leather plaster, wherever pressure has rendered the skin red and tender. To guard against the occurrence of bed sores, the back and hips should be examined and cleaned daily, and then bathed with alum water (*vide* Bed Sores, p. 52). The body should be daily sponged with tepid water, the nurse drying and sponging one part at a time, so as to prevent chill from exposure; this relieves the patient and tends to remove the unpleasant smell so common during fevers. Headache may be relieved by ice or cooling lotions. Milk, beef tea, broths, jellies, extract of beef, Liebig's raw meat soup, should be the only articles of diet; and *no* solid food should be allowed under six weeks or two months, because in consequence of the ulceration of the bowels occurring in this disease, the coats are very thin and liable to burst. Eating an orange, or a piece of potato, or drinking an effervescent draught, may cause distension of the bowel and rupture it just when the patient is otherwise doing well. The greatest precautions should therefore be taken that no solid food is given during the third and fourth week especially, when this accident is most likely to occur. After the first week wine or brandy, in the proportion of two ounces of the former or one of the latter every three hours, will generally be necessary. The fever may be moderated by saline cooling draughts, as citrate of magnesia (*vide* p. 13) taken *after effervescence has subsided,* and by cooling applications, as vinegar and water, or Recipe 83, to the head. The diarrhœa need seldom be checked unless the patient is purged more than eight or nine times in the twenty-four hours, and then a starch injection (Recipe 104) may be given, and ipecacuanha in two-grain doses three times a day. If this does not succeed, or if there is bleeding from the bowels, a drachm of powdered alum should be added to a pint of boiling milk, which should be then strained. Two ounces of this alum whey may be given after each motion of the bowels. Milk and lime water in equal parts are also often very beneficial. If *the skin is moist,* and there is little or no headache, sleeplessness and delirium may be met by an opiate as chloral (Recipe 75). But no opiate should be used, except under medical advice, so long as the skin is *hot and dry.* Before giving an opiate it should be ascertained if the patient does or does not sleep, as he will frequently assert he does not do so when sleeping for hours every night. When the patient is unconscious, care must be taken to empty the bladder, as it often happens he is unable to make water. In such cases the catheter will be required.

[From the preceding remarks it will be observed that more is to be done in this disease by care and good nursing than by medicines. Should the diarrhœa become excessive, and not to be checked by the measures noted above, Recipes 59 and 62 may be obtained and tried in succession. The latter Recipe (62) is also very serviceable when hæmorrhage or bleeding occurs.]

Fever, Typhus.—Typhus fever was formerly unknown in India, but has now been distinctly recognised in this country. The disease commences with severe headache, loss of appetite, languor, and aching of the limbs. The commencement of the fever is sudden as compared with *typhoid* fever, and in two or three days the patient takes to his bed. When the disease is formed, there is a general aspect of a typhus case, which an experienced person will at once recognise. The patient lies prostrate on his back, with a dull, stupid expression, the eyes are suffused and watery, and a dusky flush overspreads the face. As the disease advances, the eyes are half shut and the mouth open; the patient lies moaning, and unable to move himself or answer questions; the lips and teeth are dry and covered with black *sordes.* The tongue is covered with black or brown fur, the margins being often pale; and this coat may crack, but the tongue itself does not crack as in *typhoid.* The temperature of the body reaches 104° to 105° Fahr. at the end of the first week, and in favourable cases begins to decline about the fourteenth day; the diminution of the fever being often rapid. The pulse ranges during the attack from 110 to 120. On the fourth or fifth day the characteristic rash of typhus appears, probably first on the wrists, then on the bowels and chest. The rash somewhat resembles measles, but soon assumes a darker hue, which has caused it to be termed the 'mulberry rash.' It presents as irregular spots varying in diameter, from three or four lines to a mere speck; being very different from the more defined pink or rose-coloured eruption of typhoid. Unfavourable symptoms, as in typhoid fever, are extreme prostration, low muttering delirium, picking at the bed clothes, bleeding from the bowels or nose, starting of the limbs and insensibility. The average duration of typhus fever is fourteen or fifteen days, when the patient begins to recover, or the bad symptoms as above noted precede a fatal termination. When recovery takes place the subsidence of the fever is often very marked and rapid. During the progress of typhus there is a peculiar odour from the skin, which has been compared to rotten straw.

The cause of typhus is considered to be a specific poison emanating from the bodies of persons affected, or which may be generated when human beings are overcrowded in ill-ventilated dwellings. Squalor, filth, and deterioration of constitution from scurvy are also favourable to its development. When typhus fever exists, the disease is communicable, and may be contracted by other persons.

Treatment.—As regards ventilation, good nursing, cleanliness, and quiet, and with respect to disinfectants, the remarks under TYPHOID are applicable. Similar medicines should also be given for the moderation of the fever. The diet should at first consist of fluids, as milk and broths; but as there is no injury in the bowels in this disease, so much care under this head is not necessary for so long a period as advised under TYPHOID. Brandy or wine will probably be required after the first week. On the cessation of the fever and the approach of convalescence, tonics should be given, as quinine (Recipe 18), or if obtainable nitric acid (Recipe 24).

The principal distinctions between typhus and typhoid fever are shown below:

TYPHUS.	TYPHOID.
Origin connected with overcrowding.	Origin connected with defective conservancy.
Occurs at all ages.	Chiefly attacks young people.
Onset more rapid than typhoid.	Very gradual and insidious at the onset.
Face flushed or dusky, with heavy, stupid expression.	Face pale with pink flush on cheeks, and without the heavy, stupid expression.
Eyes suffused and watery.	Eyes bright and clear.
Degree of fever varies little, if at all.	Fever higher in the evenings, and less in the mornings.
Eruption dusky, mulberry coloured, of irregular form, spots not elevated except at first. The skin appears mottled.	Eruption rose or pink coloured, regular, defined, spots elevated. Skin does not appear mottled.
No diarrhœa.	Diarrhœa with yellow stools.
Tongue furred and *fur* cracked.	Tongue furred and *tongue* cracked.
Odour like rotten straw.	Not present.

FEVER, RELAPSING.—Relapsing fever, formerly unknown in India, has now been distinctly recognised in that country. Relapsing fever, from the peculiarities of its course, has been called *short fever*, *five-day fever*, and *seven-day fever*. It is also known as *famine fever*. Relapsing fever commences with feelings of chilliness, frontal headache, pain in the back and limbs, and prostration of strength. These symptoms may last from one to several hours, when the skin becomes suddenly hot and dry, with increase of headache, of pain of back and limbs, and with thirst. On the second or third day sweating may occur, but without relief to the symptoms. The temperature of the skin ranges from 104° to 108° Fahr., and the pulse from 110 to 120 beats per minute. There is no eruption of the skin, but jaundice is often a prominent symptom, sometimes occurring suddenly, sometimes gradually. At first the tongue is moist with yellow fur, then becoming dry and brown in the centre. The bowels are generally constipated, and there is often pain, tenderness, and enlargement about the liver and spleen. Severe shooting pains are felt both in the limbs and in the head, but delirium is rare.

From the fifth to the seventh day there is an abrupt cessation of all the symptoms, generally accompanied by copious perspiration, and occasionally attended with diarrhœa, or bleeding from the nose or bowels. The febrile symptoms are then absent completely for a few days, the tongue becomes clean, the appetite returns, and the patient may declare himself quite well. He may even go about and gain strength, but after six or seven days, during which period the pulse is often slower than natural, there is a sudden return of all the symptoms. The relapse lasts from three to five days, when the fever again abruptly declines. Sometimes a second or even a third relapse occurs.

Starvation and destitution are the two conditions chiefly tending to produce this disease. But, like other fevers, it is aggravated by overcrowding, want of ventilation, and all unsanitary conditions. When once originated, it is communicable to persons who have not been subjected to want of food, and must therefore be regarded as contagious.

Treatment.—The best treatment consists in placing the patient in a well-ventilated room, in promoting cleanliness, and in giving milk and other nourishing diet, such as described in the *paras.* on typhoid and typhus fevers. At the commencement of the attack the bowels, if constipated, should be acted upon by a purgative (Recipes 1 and 2), the skin should be daily sponged with tepid water, but only one part of the body at one time, so as not to cause chill. If there is much prostration with feeble pulse, stimulants will be necessary. During convalescence, mineral acids or quinine (Recipes 17, 20, or 24) should be given. For some time after the fever ceases, the patient requires a liberal and generous diet.

FEVER, INTERMITTENT, or AGUE.—Of Intermittent Fever there are three principal varieties, *viz.*:—

The *Quotidian*, or daily ague, coming on every day.

The *Tertian*, or third day ague, with interval of one clear day.

The *Quartan*, or fourth day ague, leaving an interval of two clear days.

Of all varieties, that which returns every day is, perhaps, the most common. But this regularity is not always strictly observed, neither are the cold, hot, or sweating stages, described at page 166, always present as in a typical case. Hence there are *irregular* or *masked* agues, which cannot be classed under any particular form as given above. But in all varieties of ague in well-marked cases the symptoms of an attack are similar, and are divisible into the cold, hot, and sweating stages.

Causes.—Intermittent and Remittent Fever are both marked by paroxysms of accession of fever followed by a decline of the symptoms, although in *Remittent Fever* (*vide* p. 171) the period or interval between the attacks is not so strongly defined by the appearance of returning health. Both kinds of fever are attributed to the poisonous action of MALARIA in the system. Malaria, however, has not yet been isolated as a distinct poison by the chemist. But from various diseases (the chief of which are intermittent and remittent fevers) showing a tendency to *periodicity*, or to renewed force or decline at fixed periods, being found to prevail in certain localities, it has been reasoned that a poisonous emanation must exist in such localities, to which the term malaria has been applied. Thus, judging from its effects (*viz.*, the prevalence of paroxysmal fevers), malaria is mostly produced near the marshy banks of rivers; in the dense jungle usually found at the base of mountain ranges; on lands subjected to periodical inundation, or to too profuse irrigation; in dense jungles and ravines; near marshes either of salt or fresh water; also in arid, sandy, barren districts with a moist subsoil. The idea that malaria is due altogether to decaying vegetables is a mistake. It is due to the drying of earth, either temporarily or permanently saturated with water. Thus those places, temporarily so saturated, may become healthy at some periods of the year, while other localities, having a substratum of permanently moist subsoil, or impervious rock, are always drying, and are therefore always more or less unhealthy. Still, reasoning on observation of the effects produced by malaria, the following deductions are those generally accepted as characteristic of the poison. It exists in greatest abundance immediately after the monsoons, when the hot September and October sun dries the saturated ground. It may be presumed to be an invisible vapour floating in the atmosphere, but as persons are more liable to contract fever when sleeping or residing on the surface of the ground, instead of at some little elevation above the surface, malaria is supposed to be somewhat heavier than atmospheric air. Again, it is reasoned that malaria is most powerful during the hours of night, or when a person sleeps, from the fact that malarious disease so often follows exposure at such times. That it may be conveyed from place to place by the wind appears evident from fever often occurring to persons sleeping to leeward of a marshy or malarious locality, which position necessitates breathing an atmosphere recently passing over the marsh, while persons living or sleeping to windward do so with impunity. Similarly it would appear that trees have the property of either destroying, or interfering with the progress of malaria through the air. A belt of trees intervening between a pestilential marsh and a city often affords protection to the inhabitants, and this fact has been sometimes taken advantage of by planting trees between marshy localities and human dwellings. Lastly, malaria is thought to be destroyed by fire, and it is therefore well to keep large camp fires burning when camping in malarious neighbourhoods.

It must not, however, be supposed that the subtle influence called malaria will only arise from the open surface of the ground. There is every reason for the statement that dampness in the interior of houses, or foul drains passing through, under, or near houses, will give rise to that condition of atmosphere producing various forms of malarious disease.

Sufficient malaria having been taken into the system by the lungs, or, as many believe, through the medium of bad drinking-water holding malaria in solution, intermittent or remittent fever is the most usual result; the nature of the disease being probably determined by the amount of poison received into the system, and by the strength or state of health of the person; the worst variety, or remittent fever, following the largest dose of malaria. It is, indeed, an established fact that malaria may be so virulent and active, or may be received into the system in so concentrated a form, as to kill the person in a few hours by the production of a condition resembling *collapse* (*vide* COLLAPSE, page 370) and without the ordinary manifestations of malarious fever. On the other hand, the dose of malaria may be so small as to induce only the condition presently described as *masked malarious fever,* or even only simple headache, or a little diarrhœa or *malaise.* Probably the condition of the system at the time of the reception of the poison will aid in determining the character of the resulting disease. A robust, healthy person would be liable to suffer less from the same amount of malaria than another addicted to intemperance, or otherwise suffering from debility, or from scorbutic taint, or from a condition below *par* arising from any other cause.

The human system having been once subjected to the poison of malaria, the peculiar diseases consequent thereon may be again and again *re-excited* by various causes without fresh exposure to the primary cause, malaria. After convalescence a peculiar condition or habit of body remains for months, or even for years, in which ague may be again excited by such apparently trivial agencies as cold, errors of diet, wet clothing, damp feet, or exposure to solar influence. Europeans who have returned to a temperate climate from the tropics, may remain free from intermittent fever for months, and suddenly, after some imprudence or exposure, experience a fresh attack. That poison remains dormant in the blood for an indefinite period is frequently illustrated by such diseases as venereal and hydrophobia. The material known as malarious poison once in the blood, appears to increase, probably by a process of growth, of which the multiplication of yeast, or other fermenting matter in liquids, will perhaps afford the best idea. And it would seem, that when an increase to a certain extent has taken place, such agencies as cold, or errors of diet, act as exciting causes of a fresh manifestation of the presence of the poison. So frequently, indeed, do attacks of ague follow cold and chill, that the idea has been advanced that 'chill' alone is sufficient to cause such malady, and that so-called 'malarious influences' are, in reality, simply atmospheric vicissitudes.

Symptoms.—The symptoms of intermittent fever or ague are languor, debility, restlessness, yawning, stretching, and a sense of oppression about the stomach. In other instances there is uneasiness or pain in some particular part, as the legs, back, or loins; or there may be burning of the eyes, or of the palms of the hands, or beating or other noises in the ears, or simply headache. Then a chilly sensation is felt all over the body, especially along the course of the spine, the features shrink, the fingers become white and shrivelled, and the skin generally rough. This rough state of the skin is recognised as 'goose skin' or *cutis anserina*, from a more than fancied resemblance to the skin of a plucked goose. This cold feeling is soon after followed by violent shivering and chattering of the teeth. Sometimes the cold stage, or even the shivering attack, comes on without any premonitory symptoms as above referred to. With the shivering the lips, ears, and nose become bluish in colour, the breathing quick, and the pulse more frequent, while the tongue is white and dry, and severe pains are often felt in the back, loins, and limbs. Towards the end of this cold stage the inner parts appear to burn, while the outer parts freeze. Then, after a very variable time, from a few minutes to several hours, the shiverings and cold sensations gradually become less, and the second or hot stage commences. Flushes of heat are first felt about the neck and face, soon to be followed by burning heat of the whole body. The face becomes red and flushed, the pulse quicker and strong, the temples throb, and the patient is very restless and irritable. At length the sweating stage commences, by moisture first felt on the face and neck, and soon extending to the whole surface. The pulse now lowers to the natural standard, a feeling of comfort is experienced, and the patient begins to feel in his usual health, although often remaining weak and 'shaky' after the attack. The average duration of a typical attack of ague, such as is here described, is about six hours. But it may terminate much more rapidly, or be very greatly prolonged.

The increase of bodily temperature during an attack of ague, as tested by the clinical thermometer, is from the natural standard of 98·4° to 105° or 106° Fahr. In ague the temperature begins to rise several hours *before* the paroxysm sets in, so that although the patient feels cold, the temperature of his blood is really above the normal figure. It is also proved that for some days *after* the disease appears to have departed a periodic increase of temperature may be detected, and so long as this continues the patient is not really cured.

Although the above symptoms are always present in a typical case of ague, it very often happens that the cold stage is not present, or very slightly so, heat of skin coming on without the prior shivering. And the case may be complicated by affections of internal organs, particularly of the spleen and liver, which will be evidenced by pain or uneasiness in the parts, and by the other symptoms described under the headings of LIVER and SPLEEN DISEASE. In many cases the head is affected, and there is, especially during the hot stage, considerable delirium, the patient talking at random, and occasionally failing to recognise his friends. In other instances the stomach is chiefly affected, and there is obstinate and continued vomiting, neither medicine nor food being retained.

The period intervening between one attack of ague and another is called the *intermission*, and if these *intermissions* are complete—that is, if the usual health is resumed—the disease is called Intermittent Fever in contradistinction to Remittent Fever, in which affection, as will afterwards be seen, there is no perfect intermission of symptoms.

Treatment.—The great object is to shorten the cold and hot stages. The patient should be at once put to bed, covered with blankets, and have hot bricks or hot-water bottles put to the feet. He should drink freely of hot tea or *congee*, or cold water, if more agreeable. A pan containing hot ashes placed under the bed is a useful means of promoting warmth. Emetics are sometimes desirable in the first stage of ague. When there is nausea and inclination to vomit, and when the attack has come on shortly after a meal, a mustard and water emetic (Recipe 77) may be given with great advantage. But the practice of administering either purgatives or emetics in every case is objectionable. Their operation disturbs and inconveniences the patient, and may expose him to cold at the critical periods of the passage of one stage into another.

In the second, or hot stage, the patient should be encouraged to drink freely of cold water (which is one of the best means of promoting perspiration), the body may be sponged with tepid water, and vinegar and water, or cold lotion (Recipe 83), may be applied to the head. Small doses of citrate of magnesia (*vide* p. 13) may also be given, which will tend to promote perspiration and to allay the irritability of the stomach.

When the patient begins to perspire, if not profusely, the perspiration should be encouraged by still keeping the body well covered, and by giving tea, or, if preferred, cold water. If weakness is complained of, a little wine, or brandy and water, will be desirable. Great care should be taken that the patient does not get chilled when he changes his clothes after perspiration.

It is, however, during the intervals between the paroxysms that the curative treatment must be employed. If the bowels are not in good order, if the tongue is furred and the liver inactive, a purgative, as Recipes 1 and 2, should be taken. Then quinine should be administered either with sherry wine, as Recipe 17, or by itself in water and lime juice to the extent of five, six, eight, or even ten grains every three hours during the intermission, or until singing of the ears, or noises in the head, or perhaps partial deafness, occurs as an effect of the quinine, when it should be at once stopped. But in some constitutions, or in malarious districts, it may be necessary to give more quinine than the quantities mentioned. 'Experienced hands in ague do not think of measuring or weighing the dose (of quinine) at all, but unhesitatingly take from their bottle, always with them, a flat teaspoonful of quinine powder, which probably contains about twenty grains.' If this treatment is adopted the next paroxysm may be either altogether stopped or checked in violence. Those subject to ague, and who are well aware of the premonitory symptoms they usually experience, may often prevent an attack by an early recourse to quinine, and by attention to the state of the bowels.

[But quinine is not always successful, and when this occurs the fever may probably be re-excited by some disordered condition of the liver and bowels, or by some morbid condition of the blood. In such cases it will be desirable to give a laxative, as five grains of blue pill every night and the draught, Recipe 2, every morning until the motions are of the natural colour; also to alkalise the blood by effervescing draughts (Recipe 56). After two days of such treatment quinine may again be used with greater probability of success.

There are numerous other remedies reputed effective in ague, but the quinine treatment is generally admitted to be the most certain. Arsenic is the next best approved anti-periodic, and quinine failing, or in cases when quinine cannot be taken in consequence of some peculiar constitutional idiosyncrasy (*vide* p. 16), the liquor arsenitis potassæ (Recipe 27) may be administered in five-minim doses. *Strong* nitric acid in eight or ten drop doses is also often beneficial. The acid when thus used should be freshly dropped into a wine-glass half full of water, and the mixture taken immediately. If allowed to stand, the acid does not exert the same effect. *Narcotine* in five-grain doses is also often a good substitute for quinine.

In cases of obstinate recurring intermittent fever, it will be desirable to try the medicine known as 'Warburg's Tincture,' which has often been successful, when properly administered, after other medicines have failed, although not unfrequently failing itself. This preparation is composed of various aromatic substances digested in proof spirit with aloes, chalk, and quinine. 'Warburg's Fever Drops' may be purchased from the chemist, and the following are the directions for the use of the medicine:—

Prior to the administering of the tincture it is necessary for the successful action of the medicine that constipation of the bowels, if present, be removed by a dose of castor oil or other form of aperient.

For an adult patient one-half of the quantity contained in the phial should be given unmixed and undiluted, a little before or at the first appearance of the next returning paroxysm of an intermittent fever; the other half, also unmixed and undiluted, after a lapse of three hours.

During the interval between the first and second doses, and also for a full hour after the second dose, the patient must abstain entirely from food and drink.

Immediately after taking the first dose, the patient should retire to bed. The perspiration induced by the tincture should on no account be checked, but sustained and promoted, as far as possible, by quietness in bed, additional warmth of covering, and avoidance of cold air.

In severe cases, where prompt action is particularly indicated, the tincture may be taken at any stage of the fever, without the previous use of purgative medicine; but the bowels should always be opened as soon afterwards as circumstances will admit.]

When, during the progress of intermittent, the liver, spleen, or lungs become affected, in addition to the fever the symptoms described under the different affections of such organs will present, and the treatment must be that detailed for such ailments in combination with the quinine treatment for the cure of the ague.

Fever, Remittent.—Remittent has been called *Jungle Fever*, *Teraì Fever*, *Bengal Fever*, &c., from the locality in which it originated, but the symptoms of all these so-called local fevers are essentially the same, and are comprised in the term Remittent.

The causes of *Remittent* fever are the same as those of intermittent, and have been already detailed.

Symptoms.—The accession of this disease may be sudden, but, as more frequently happens, weakness, lassitude, mental depression, headache, and general uneasiness exist for a day or two. This is succeeded by cold, shivering, pain and tension of the head, soreness of the eyeballs, aching of the back and limbs, nausea, bilious vomiting, or purging, and uneasiness or pain at the pit of the stomach. The tongue is coated, the skin dry and hot, and the eyes appear dim.

This condition, which may be called the first stage of remittent fever, lasts but a short period, and is often feebly marked; but the second stage continues longer, frequently for eight hours, and is characterised by the pulse becoming quicker, by heavy breathing, with great restlessness and heat of surface, the temperature, as shown by the clinical thermometer, being often as high as 106° Fahr. There is generally incoherence or delirium, and often yellowness of the whole body, which may come on suddenly, or more commonly, gradually. There is also sometimes great irritability of stomach and obstinate vomiting.

After a variable time, usually about six hours, the *remission* occurs, which is more or less complete, according to the severity of the disease. This is characterised by perspiration, reduced temperature, softer pulse, and sometimes refreshing sleep. But often the *remission* of the symptoms is very slight, and the condition marking the second stage recurs, perhaps without any prior feeling of cold. The continuance of the symptoms, without any prolonged or very decided interval of freedom from fever, constitutes the great distinction between an Intermittent and a Remittent.

During the progress of Remittent, affections of internal organs are very likely to occur. Thus, from the effect on the brain, particularly during the cold stage, sudden fainting may take place, probably after the patient has been imprudently raised into an erect posture, which should therefore be *carefully avoided.* Secondly, there may be irritation, or even inflammation of the brain or its investing membranes, characterised by great heat of scalp, delirium, and injection or redness of the whites of the eyes, which condition may gradually pass into complete insensibility or stupor. Thirdly, bronchitis or inflammation of the lungs may occur, when symptoms present as detailed under the headings of these maladies. Chest affections, it may be noted, are very liable to supervene on remittent fever, occurring to Natives, especially in the cold season, of the northern districts of India. Fourthly, the stomach may be excessively irritable, every article of food or medicine being rejected. Fifthly, congestion or inflammation of the liver may occur, known by pains and other signs distinctive of these maladies (*vide* paragraphs on such affections). Sixthly, the spleen may be chiefly implicated (*vide* paragraph on SPLEEN DISEASE). Seventhly, remittent fever and delirium tremens are not unfrequently combined (*vide* paragraph on the latter disease). Eighthly, diarrhœa may prevail. Ninthly, dysentery may come on.

The duration of a simple paroxysm of remittent fever may be stated to average about twenty-four hours, but recurring paroxysms (unless cut short by medical treatment) generally tend to become of longer duration than the first. The duration of the disease by such recurring paroxysms is usually from ten to twelve days, when either a favourable termination or death takes place. If disease of any internal organ, as above mentioned, occurs, the illness is prolonged indefinitely.

Treatment.—In ordinary cases, when no affection of internal organs is evident, a purgative, as Recipe 1, followed after three hours by Recipe 2, should be given daily, until the stools are of a healthy yellow colour and free from all lumpy material. Citrate of magnesia draughts (*vide* p. 13) should also be given two or three times daily. Headache may be relieved by a few leeches to the temples or behind the ears, or, if not so severe, by cold lotions (Recipe 83). Immediately on the first sign of remission, or when moisture of the skin presents, fifteen grains of quinine with, if available, half a teaspoonful of lemon juice, should be given dissolved in two ounces of water. Quinine in six-grain doses should be administered afterwards every three hours until recurrence of heat and dryness of the skin, when the quinine should be stopped; or until two days have been passed without fever, when the quantity of quinine should be gradually reduced, the more rapidly if singing or noise in the ears or deafness occurs. If the fever returns after the first remission, and after the first doses of quinine have been taken, citrate of magnesia draughts, and laxatives, if required, should be again given, quinine being a second, or third, or fourth time resorted to, on return of moisture of the skin and diminution of febrile symptoms.

Some practitioners do not wait for the remission of the fever to give quinine, as here recommended. But this plan is one which should, in the writer's opinion, only be followed under direct medical supervision. In the absence of such superintendence, the safer plan will be to wait for abatement of febrile symptoms before administering quinine.

In cases where either the bowels, chest, liver, or spleen are affected, the same plan must be pursued for the cure of the fever. But *when the symptoms point to affection of the brain,* quinine should *not* be given, excepting under medical advice. Affections of various organs supervening during remittent fever must be further treated generally as mentioned under the different headings.

During the whole progress of the malady good nourishing diet, in the shape of animal broths or jellies, and farinaceous puddings and gruels, should be given; and if great debility occurs, or if fainting feelings are experienced, wine or brandy should be given without delay. Similarly if the tongue becomes dry and brown, with great debility and weak quick pulse, perhaps also accompanied by muttering delirium, stimulants at regular intervals will be urgently demanded.

[When from irritability of the stomach quinine is not retained, twelve drops of strong nitric acid in an ounce of water should be given instead, until the sickness of stomach subsides. Or quinine may in such cases be injected beneath the skin; but this operation requires a peculiar instrument and special skill. When, as may sometimes be the case, the purgative medicines recommended do not unload the bowels and liver, producing healthy stools, a mercurial dose, as Recipe 8, should be given. These means failing, 'Warburg's tincture' may be tried (*vide* p. 170).]

FEVER, REMITTENT, OF INFANTS.—Infants and children are very subject to fever of the remitting description, although not always arising from malaria. The main symptoms are much the same as those described above, the malady being marked by *incomplete* cessation of the febrile state. This incomplete cessation or remission of the fever of infants is generally most marked in the early morning, while the aggravation of the symptoms is most developed towards the evening and in the early part of the night. In remittent fever of children there is always a tendency to wandering of the mind, and actual delirium or stupor often occurs, the latter accompanied by much restlessness, and probably moaning. Remittent fever in children may occur from a number of causes, of which malaria, the irritation of teething, worms, improper diet, and collection of fæcal matter in the bowels are the chief. In perhaps the majority of cases of remittent fever occurring to children the malady is not caused by malaria, but arises from one of the other reasons named. Remittent in children can therefore only be correctly treated by first ascertaining the cause, and then using the remedies recommended for such a condition.

FEVER, MASKED MALARIOUS.—The condition thus known is the result of the presence of malaria in the system, in a minor degree, acting upon a feeble or irritable constitution. It consists of very slight febrile excitement, which may be intermittent or remittent. It is often present in delicate females, and is frequently found associated with a scorbutic state of the system.

The individual thus affected complains chiefly of heat, dryness, and burning in the palms of the hands, less frequently in the soles of the feet, and he may be annoyed by occasional periodic beating or singing in the ear. There is more or less general uneasiness, perhaps slight headache, but no decided pain anywhere. The pulse is not excited, the skin, excepting in the palms, does not feel warm to the touch; but the application of the clinical thermometer will show that the temperature is higher than natural. The appetite probably remains good, but the sleep is restless. The burning of the palms may be persistent with slight remissions, when the parts become a little moist; or there may be distinct intermissions. This condition may prevail for months or even years, and is oftentimes so slight as scarcely to attract much attention. But in other instances it constitutes a perpetual source of annoyance and discomfort. Persons so affected are not especially prone to attacks of fully developed fever. They appear often to escape the latter, by the malaria expending itself in the constant induction of the masked form. But they are very liable to affections of the spleen, terminating in enlargement of that organ, and they generally become debilitated or *anœmic* (*vide* ANÆMIA, p. 42), losing their colour, presenting a sallow appearance, suffering from diarrhœa or eczematous eruptions of the skin (*vide* ECZEMA, p. 279), from depression of spirits, from indigestion, and from palpitation. To this condition the term *malarious cachexia* is often applied.

A condition somewhat resembling masked malarious fever sometimes arises from saturation of the system with quinine or arsenic, given for the cure of fevers. The blood may indeed be said to be poisoned by these agents; which, although necessary to cure fevers, are known to be capable of exciting a febrile condition. When, therefore, masked malarious fever occurs to persons who have taken much quinine, the possibility of this being the cause should not be forgotten.

Treatment.—This ordinarily consists in the use of quinine (Recipe 17) or other tonics and in attention to the general health. A liberal diet and a moderate amount of wine or beer should be taken, with coffee at least once a day. Change of climate is, however, often the only remedy.

[The other tonics referred to above are iron and arsenic (Recipes 20 and 27). But if it should appear that a continued use of quinine or arsenic has induced a febrile state, mild purgative and diuretic medicines should be administered (Recipes 9, 2, and 73), with the view of eliminating such excitants from the system.]

FEVER, MALARIOUS, INFLUENCE OF THE MOON ON. It is a very general impression that the moon exerts an influence on fevers, and that these diseases are more prevalent and more likely to recur at the lunar changes than at other periods. Statistics, however, do not confirm such impressions; but, nevertheless, the idea is very general, and has persisted from early periods of history. Persons subject to fever will often assert their malady returns at the new and full moons, with greater regularity than at other periods; or if the fever does not recur, they feel uncomfortable, and suffer from various anomalous and ill-defined sensations, evidencing some deviation from health. That the moon *per se* exerts such influence may well be questioned. But at the lunar phases there are undoubtedly atmospheric changes which may affect the more sensitive constitutions of those disposed to disease. Thus the barometer suffers a depression of about the tenth of an inch at the new and full moon; while there may be other more subtle influences at work with which we are unacquainted. If, as seems well established, the moon's attraction is the chief cause of the oceanic tides, it certainly appears not unreasonable to suppose that such power must in some way influence the less dense fluid of the atmosphere, as regards change of temperature, or moisture, or force and direction of winds, or as regards the forces of light, electricity, and magnetism. In the description of intermittent fever it has been noted what apparently slight causes (errors of diet, cold, mental emotions, &c.) will induce a return of fever in those who have once suffered from the complaint, and the atmospheric changes consequent on the lunar phases would seem to be sufficiently powerful to induce a similar result. However this may be, the practical application of the present knowledge of the matter results in the desirability of those subject to fever taking precautionary measures, such as a dose of quinine, and avoidance of exposure, just previous to the changes of the moon.

It may be remarked that several other maladies have been attributed to the influence of the moon, the principal of which are MOON BLINDNESS and MOON PARALYSIS. After persons have slept in the rays of the moon it has often occurred that they have found themselves unable to move an arm or a leg, or unable to see. But the loss of power of the limbs thus occurring is not true paralysis. It is a species of rheumatism, and it will be found the person is able to move the limb affected, but refrains from doing so in consequence of the attendant pain. Neither is the affection consequent on the moon's rays, but it arises from chill or cold. The malady should be treated as rheumatism, with hot baths, stimulating liniments, and colchicum mixture (Recipe 72).

MOON BLINDNESS, on the other hand, does arise from the rays of the moon. The *retina* or expansion of the nerve of the eye becomes paralysed from lengthened exposure to a brilliant moonlight, even although the eyes are covered by the lids. Just as sometimes occurs to men working in front of a blazing furnace, as in iron and some other manufactures, or to arctic voyagers from the glare of the snow. Sometimes there is total blindness both by day and night, or the loss of vision may be only partial. The treatment will generally require leeches, blisters behind the ears, purgative medicines, and confinement in a darkened room.

FEVER, RHEUMATIC.—*Vide* RHEUMATISM, p. 258.

FEVER, MILK.—Commonly called *Weird.* This is a febrile condition, frequently attending the secretion of milk after childbirth. In ordinary cases the milk flows about twenty-four hours after delivery; but the patient may sometimes suffer from shivering, heat of skin, quick pulse, with pain and soreness of one or both breasts, the appearance of the milk being delayed. In such cases the bowels should be well opened by castor oil, cold or chill guarded against, and hot fomentations applied to the breast. If the latter organs become swollen, knotty, and hard, they should be gently rubbed with salad oil, and the infant should be put frequently to the breast. If matter forms, it must be treated as mentioned under the head ABSCESS OF THE BREAST, p. 69.

FEVER, PUERPERAL.—This variety is a very dangerous kind of fever, sometimes, although fortunately not very commonly, occurring to women after confinements. The best authorities class puerperal fever with those of a typhoid character, and it appears to depend on poisoning of the blood from the absorption of putrid matter retained within the womb. When a woman shortly after labour is seized with shivering, and this is followed by a hot and sweating stage with feelings of relief, when the breasts swell, when the discharge or 'cleansings' are passing freely, there is nothing to apprehend. It is probably the *Milk Fever* or *Weird*, as described above. But when, after perspiration, no relief is experienced, when the breasts become flabby and smaller, when the discharges lessen or cease altogether, and when the pulse remains above one hundred and twenty beats in the minute, there is great reason to fear puerperal fever. Such fear will become certainty if prostration of strength, difficulty of breathing, and suppression of the flow of milk come on. Pain and tenderness of the bowels are also very frequent and prominent symptoms; the tongue and breath are foul, the face sallow, and there is probably an irritating diarrhœa, marked by the passage of hard lumps of fæcal matter called *scybalæ*. Puerperal fever, when formed, is highly contagious, and may be carried by attendants from one lying-in woman to another.

Treatment.—The treatment of puerperal fever should be decisive and commenced early. The first thing necessary is to act on the bowels and on the skin, and for this purpose Recipe 1 should be given, followed after four hours by a purgative draught, Recipe 2. An injection composed of two ounces of castor oil and ten or twelve ounces of soap and water should also be given. Citrate of magnesia draughts (*vide* p. 13) should be taken every four hours. Injections of warm water should also be thrown up the private parts, which, acting as an internal fomentation, will frequently

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bring on a return of the discharge, with great relief to the patient. If there be pain and tenderness of the bowels, the abdomen should be covered with hot linseed-meal poultices (Recipe 80). Great attention should be paid to the ventilation of the room, and disinfectant agents should be freely used.

FEVER, DENGUE.—In the greater number of cases the first symptoms of dengue fever are headache, restlessness, chilliness, debility, pains in the back, limbs, and joints, of a very severe character, with more or less general feverishness. Shortly afterwards, generally within twelve hours from the first feelings of uneasiness, an eruption of a red or scarlet character appears, lasting about forty-eight hours. During the fever the temperature of the body rises to 103° or 104° Fahrenheit, while the pulse ranges to 120 beats in the minute. But experience has proved that this rise of the animal heat of the body, and the increased frequency of pulse, only last during the limited first febrile state, and the condition is not ordinarily indicative of danger. As the rash disappears the fever lessens, and for two or three days there is generally an almost complete remission of febrile symptoms. Then, with an accession of fever a second eruption, more resembling that of measles, occurs. This may be so slight as to escape notice, or it may last a few hours, or persist for two days. Sometimes this second rash resembles 'nettle rash' rather than measles, and there is often intense itching. This second fever and second eruption often leave the patient much weakened and depressed, with rheumatic soreness, and stiffness and pains in the joints. Dengue fever prevails epidemically, and must be considered contagious. It attacks both adults and children—even infants—when the startings occasioned by the pain may be mistaken for convulsions. But the after-pains, so common and so distressing in grown-up people, fortunately seldom cause much trouble to infants and young children, who recover with great rapidity. Dengue fever, from the accompanying eruption, has been also called 'red fever.'

Treatment.—In the treatment of Dengue it should be borne in mind that we are dealing with a specific fever, which, when once commenced, must run a certain course. There is, therefore, no rapid cure for this febrile affection; but much may be done to alleviate the symptoms as they arise. Attention should always be directed to the state of the bowels, and constipation, if present, should be relieved by Recipe 1, followed by Recipe 2. If there is much fever small doses of citrate of magnesia (*vide* p. 13) should be given; if there are sleeplessness and great pain in the limbs, but the head is *not* complained of, ten or twelve grains of Dover's powder, or twenty grains of chloral, may be given at night. If there is tendency to periodical returns of pain or feverishness, quinine, as Recipe 18, should be used. Warm baths in which a couple of pounds of common washing soda have been dissolved are also useful. For dengue in children little treatment is required. A senna purgative (*vide* p. 25) and cooling draughts of citrate of magnesia will be advisable, and if the child is teething the gums should be lanced if hot, tender, tumid, and giving trouble.

[Tincture of belladonna in ten-minim doses has been stated to relieve the pain and to mitigate the fever. This may be procured and given three times a day in water. Or the colchicum mixture, Recipe 72, may be tried, if the belladonna tincture is not efficacious.]

FEVERS, ERUPTIVE.—*Vide* CHICKEN-POX, MEASLES, SCARLATINA, SMALL-POX, TYPHOID FEVER, DENGUE FEVER.

FISTULA.—This term is applied to any sore which burrows under the skin. A deep-seated abscess, having only a small opening through which the discharge passes, comes under the denomination *Fistula.* Fistula may occur in almost any part of the body, but the term is more popularly used with reference to fistula near the *anus.* This, as most other kinds of fistula, results from the formation of abscess. When abscess forms in the neighbourhood of the anus it is characterised by throbbing pain and fever; it usually points close to the orifice of the anus, and should be opened early with a lancet (*vide* ABSCESS). Then the abscess may gradually cease discharging matter and heal, or otherwise a fistula remains. The treatment of nearly all kinds of fistula requires surgical operation.

FITS.—The term 'fit' is commonly used to signify almost any sudden attack, and particularly if attended with convulsions. Fits may be of four classes, viz.: Apoplectic, Epileptic, Hysterical, and Fainting. In all these there is, during the paroxysm, loss of consciousness, but in the hysteric fit it is least marked. An apoplectic fit may be known by the 'stertor' or peculiar noise attending the breathing, the puffing of the cheeks, the profound insensibility, and ordinarily the slow pulse, and the bloated appearance of the face, although in some varieties of apoplexy the face may be pale and the pulse feeble. Epilepsy is characterised by violent convulsive spasms and struggling, the face is frightfully contorted, there is foaming at the mouth, the jaws are firmly shut, the tongue is often bitten, and the arms are tossed about. In hysterical fits the countenance retains a natural expression, and there is usually screaming, sobbing, or laughing, and incomplete insensibility, so that the person avoids injuring herself in her struggles, and never bites her tongue. Fainting or *syncope* is marked by paleness of the face, dilated pupils, feeble pulse, and there is neither the stertorous breathing of apoplexy, nor the convulsions of epilepsy, nor the laughing or screaming of hysterics.

In apoplexy the pupils of the eyes are usually contracted, but occasionally large, or one may be dilated and the other contracted. In hysteria they are of the natural size; in fainting they are always widely dilated; in epilepsy the whites of the eyes are frequently only visible. Apoplexy is most common in adult or advanced life. Epilepsy occurs at all ages. Hysteria is almost confined to the female sex, and to the ages between fourteen and forty. Fainting may occur at any age, but is most common in the young. For further description and treatment *vide* APOPLEXY, EPILEPSY, HYSTERIA, and SYNCOPE. (*Vide* pp. 43, 140, 211, 151.)

In addition to the above maladies so often spoken of as 'fits,' there is Drunkenness, or a 'Drunken fit;' for which apoplexy may be mistaken or *vice versâ.* The chief ordinary points of distinction are, that in drunkenness the pupils are equal in size, and on arousing the person, which may be done from the drunken fit (but not from apoplexy), he usually babbles incoherently. There is also the smell of liquor with the breath; but this sign may be fallacious, as some one, from mistaken kindness, may have given liquor to a person struck with apoplexy (*vide* APOPLEXY, p. 43).

FLATULENCE.—Flatulence consists in an accumulation of gas in, and its discharge from, the stomach and bowels. The gas formed is generally sulphuretted hydrogen. It may cause pain, eructations, vomiting, and even palpitation of the heart. It is an ordinary symptom of indigestion (*vide* DYSPEPSIA), and is frequent in hysterical women. An effervescent or Seidlitz draught, a few drops of sal volatile or ether in a little water, or a dose of magnesia will generally prove beneficial. Flatulence, however, can only be radically cured by considering it and by treating it as a symptom of dyspepsia.

FLATULENCE OF INFANTS.—Flatulence or 'wind' in the stomach of infants most usually results either from food being unsuited to the child, in which case it should be changed; or from the child taking it too quickly, or in too large quantities, which should be guarded against. However the flatulence arises, it is frequently the cause of great suffering to the child, from the pain and spasm it occasions in the bowels. Infants thus affected scream violently, often stopping for a few moments suddenly, as though straining, and their legs are drawn up towards the bowels. The best means of relief is rubbing the child's belly gently with the palm of the hand, and a few grains of citrate of magnesia (*vide* p. 13) may be given. If this does not stop the pain in the course of ten or fifteen minutes, a drop or two of chlorodyne (*vide* p. 9) may be administered in a little water.

[A much better remedy, however, than either of the above is the magnesia and aniseed mixture given under Recipe 42, which for a child subject to flatulence should be procured from the chemist.]

FLUSHING OF THE FACE is a symptom of dyspepsia often met with, without much other disturbance of the health, and generally occurring after meals. If any article of food is followed by such flushing it should be avoided. A very moderate use of fermented drinks should be adopted. In some instances ten drops of dilute sulphuric acid in water three times a day is very serviceable.

FUNGUS FOOT DISEASE.—This affection is very common in some parts of India, especially in the Western Presidency and throughout Rajpootana. It principally attacks Natives, and is supposed to arise from the entrance beneath the skin of some vegetable spore or germ. It is generally seen about the feet, but may occur in other parts of the body. Its first appearance is that of a swelling under the skin, in which may be seen a bluish or black appearance. After a variable time the skin bursts, and an open sore results, discharging pieces of a black substance with matter. The removal of the diseased part by surgical operation is the only means of cure.

GALL STONES.—Gall stones are small substances about the size of a pea, which sometimes form by the deposit in the gall-bladder of certain elements of the bile, present in too great redundancy. When formed, the flow of bile sometimes carries them into the short duct or tube leading from the gall-bladder into the intestines. The passage of a stone causes sudden attacks of excruciating pain immediately to the right of the pit of the stomach, shooting to the back, with vomiting, and occasionally sudden jaundice. From this pain there are intervals of comparative ease, and pressure will, to a certain extent, relieve it, which distinguishes the malady from inflammation, when pressure is painful. If a small stone remains impacted in the duct, the flow of bile is prevented, but not altogether stopped, and jaundice comes on more slowly than when the stone, exactly fitting the tube, blocks the passage altogether.

Treatment.—If possible a hot bath should be given, or otherwise the painful part should be fomented with very hot water. If the attack comes on after a full meal, an emetic may be given (Recipe 77). Chloral should also be used to the extent of fifteen grains every three hours for three doses. If much sickness exists, the laudanum should be given as an enema. If the bowels are costive, Recipes 1 and 2 should be administered as a purgative.

GASTRIC DISEASES.—Gastric diseases are stomach complaints (*vide* DYSPEPSIA). The term *Gastric Fever,* in common use, conveys an erroneous idea of a fever of a special type, the fact being that it is nothing more than one or other of the varieties of fever already described, accompanied, as mentioned to be sometimes the case (*vide* pp. 168, 171), with great irritation of the stomach, causing pain and obstinate vomiting.

GLANDS, ENLARGED.—There is a system of minute vessels spread over and through the body termed *absorbents,* and on their course are placed little bodies termed *Glands.* In health most of these glands are scarcely perceptible, but when enlarged they attract notice. The glands most liable to enlargement are as below.

ENLARGEMENT OF THE GLANDS OF THE NECK.—This often occurs in young persons, especially if of scrofulous habit.

They may enlarge, remain swollen for days, or even weeks, and then subside. But they sometimes inflame, gather and form matter, and cause an ugly sore, which leaves a disfiguring scar. When the swelling is not painful, and before *throbbing* indicates the formation of matter, iodine paint should be applied. If this does not *stay* the progress of the gathering, it should be *hastened* by poulticing, and when the matter points, the abscess should be opened with a sharp lancet, the puncture being made longitudinally, or in a line with the folds of the skin of the neck, by which a remarkable scar will be avoided. After matter has ceased to flow, the part should be dressed as an ordinary ulcer. Quinine and iron, cod-liver oil, and nourishing diet shou'd always be given.

THE GLANDS OF THE ARMPIT may enlarge from similar causes, or as the result of some injury to the hand, or from cancer of the breast.

THE GLANDS OF THE GROIN may swell and gather from similar causes, or from venereal disease, forming bubo.

The treatment of the two latter descriptions of enlarged glands is the same locally as when the glands of the neck are affected. But general treatment must depend upon the diseases causing the enlargement.

Lastly, swelling of the GLANDS BEHIND THE JAW not unfrequently occurs, forming *mumps*, which is elsewhere described (*vide* MUMPS, p. 237).

GONORRHŒA.—Gonorrhœa arises from contagion, and consists of inflammation of the lining membrane of the urinary passage. It may occur in either the male or female. It commences with itching and redness of the urinary passage, accompanied by a thin whitish discharge. In two or three days there is swelling of the private parts, great pain in making water, and a copious discharge of thick yellowish-coloured matter. The groins, thighs, and testicles ache and feel tender, and there is often, particularly during the night, partial hardness of the penis known as *chordee.* In some cases the inflammation extends to the testicle, which swells and becomes painful; or otherwise the bladder may become inflamed. When the testicle becomes affected, the discharges from the penis generally stop, and there is a dragging sensation in the groin. When the bladder becomes inflamed, the symptoms are as described under that head (*vide* p. 54).

Treatment.—If the disease cannot be treated at the onset, as mentioned in small type below, it will be desirable to wait until the inflammatory and febrile symptoms have subsided before applying local or using specific remedies. The bowels should be kept freely open by sulphate of soda (Recipe 2), and citrate of magnesia draughts (*vide* p. 13) should be given. Pain may be relieved by hot hip-baths, by chloral, or by chlorodyne. If chordee occurs, the part should be immersed in cold water. Rest must be enjoined, the diet must be low, fermented liquors, spiced dishes, and coffee being avoided, and the part should be well supported and not allowed to hang down.

[As soon as the patient is free from febrile symptoms, in four or five days, he should take copaiba. The best preparation is copaiba prepared in a capsule, which may be swallowed like a pill, and the nauseous taste thus avoided; or he may take the preparation of the chemists known as *dragées copaibæ and cubebs.* A sulphate of zinc injection, as Recipe 98, should be used twice daily.

If gonorrhœa in the male be detected at the first, when only a little itching or watery discharge is present, it may be often cut short by injecting, once every four hours, a solution of nitrate of silver, of the strength of two grains to eight ounces of water. This should be repeated six or eight times, desisting, however, sooner if the discharge is rendered bloody, or if pain is excited. The patient should take a gentle aperient, as Recipes 1 and 2, and avoid fermented liquors, spiced dishes, and coffee. He should also lie down as much as possible, and the private part should be enveloped in a rag kept wet with a lotion (Recipe 84).]

When the testicle becomes affected, injections, if being used, should be discontinued; the patient should lie in bed;

the painful part should be elevated on a pillow or by a bandage; leeches and warm fomentations should be applied; citrate of magnesia draughts should be given, with chloral or chlorodyne at night, to relieve pain and procure sleep.

When the bladder is inflamed the treatment should be that mentioned for inflammation of the bladder (p. 54), and injections, if being used, should be discontinued.

For gonorrhœa in females, internal remedies, excepting aperient doses, are useless. Alum injection (Recipe 100) should be used, tepid and freely, with the aid of a female syringe.

GLEET.—Gleet signifies a thin watery discharge, accompanied by slight scalding, and is generally a sequence of gonorrhœa. It is often tedious, requiring lengthened treatment and very temperate living. The daily use of a sulphate of zinc injection (Recipe 98) and attention to the general health, with perhaps the use of tonics, as iron and quinine, will generally prove successful.

GOITRE.—*Vide* DERBYSHIRE NECK, p. 113.

GOUT.—Gout is a very painful affection of the joints, arising from a poison generated in the blood. In some characteristics it resembles rheumatism. But gout first attacks the smaller joints, as the toes and fingers, while rheumatism fixes on the larger joints. Gout generally attacks the indolent and those feeding luxuriously; rheumatism the ill-clothed and ill-fed poor. Gout is generally a disease of advanced life; rheumatism often attacks the young.

An attack, or, as popularly termed, 'a fit of gout,' is usually preceded by feverishness, headache, and symptoms indicating indigestion. Gout most frequently comes on during the night. There is acute and grinding pain in the part, most usually the great toe, abating towards morning, but leaving the toe red and swollen, tender and shining. There is also acid perspiration, the patient's temper is irritable, and the urine, at first scanty, high-coloured, and clear, afterwards becomes more copious, and deposits a sediment. For several nights the pain may recur, then disappear, and return six or twelve months afterwards. It may also attack the fingers, causing *chalk stones*. Or in rarer cases it may suddenly leave the toe and attack the stomach, which will be known by sudden and excruciating pain at the pit of the stomach, with flatulence, faintness, and symptoms of collapse (*vide* COLLAPSE, p. 370).

In addition to the stomach, gout may also attack other internal organs, as the heart or brain; but such conditions can only be diagnosed, or treated by medical skill.

Treatment.—On the approach of the attack, or 'fit,' the bowels, if confined, should be moved by Recipes 1 and 2, and in the absence of the specific remedy, *colchicum*, mentioned in the small type below, sulphate of soda should be given in two-drachm doses three times a day. But the medicine must not be allowed to depress the patient, and should be reduced in quantity if it acts too much on the bowels. The local treatment consists in wrapping the inflamed part in cotton wool, on which half a drachm of chloroform has been scattered, and then keeping the limb well raised from the ground, and as still as possible. In all cases warmth is the great thing, cold having a tendency to drive the gout to some internal organ. Rest must be absolute, and the diet plain. It must consist only of milk, arrowroot, and the like. As a general rule, all animal food should be avoided. Toast water or seltzer water may be taken freely. After a time fish may be given. If there is need for a stimulant Scotch whisky or gin may be used in small quantities, but for a time stimulants are better avoided.

After the fit regular living must be insisted upon. As a rule fermented liquors should not be taken, although in some instances a little claret, chablis, hock, or gin and water, does not do injury. The diet should be mainly vegetable. Regular exercise, and attention to the bowels, so as to prevent costiveness, are also enjoined.

If the stomach is attacked, stimulants—as brandy and water, ether, or ammonia—must be given, and mustard poultices should be applied to the feet, with the view of restoring the external inflammation.

[Those liable to gout should obtain colchicum wine, and colchicum and potash mixture (Recipe 72). On the approach of a fit of gout, thirty minims of colchicum wine should be taken in a couple of ounces of water, and afterwards the colchicum and potash mixture (Recipe 72) every four hours until the pain ceases, or until depression or nausea results. Usually this will stop the attack in twenty-four hours, after which in any case the treatment should not be continued without an intermission of a day. Also if there is any affection of the heart, the colchicum treatment should not be pursued. except under medical supervision. When the pain has been arrested by colchicum, it should be borne in mind that the disease is only *checked*, and that the real treatment is, principally, regular living *after* the fit. If the local application of chloroform and cotton wool mentioned above does not succeed, a lotion composed of acetate of lead one drachm, acetate of morphia three grains, water eight ounces, should be obtained and applied *warm*. This lotion does much good. It should be recollected that it is poisonous.]

GRANULATIONS.—This term is applied to the little red portions of flesh which grow in, and fill up wounds. When they are more than ordinarily luxuriant they are commonly called 'Proud Flesh.' Granulations are the consequence of the natural healing process. When they are high, pale, and spongy, they require touching with alum, or sprinkling with powdered loaf sugar, which reduces their growth, and allows the wound from which they spring to heal.

GRAVEL.—Gravel signifies a deposit in the urine. There are two principal kinds of gravel, viz., *red* gravel and *white* gravel.

Red Gravel is composed of *uric* or *lithic* acid, more or less mixed with the colouring matter of the urine. Sometimes, from some variation of the latter, such deposits are rather pink than red. The urine of persons passing red or pink gravel is clear, acid, of dark golden colour, and often less abundant than the urine of health. After it has cooled the red or pink deposit appears as a sediment. Persons noticing such deposits in the urine after it has stood are very apt to believe they may aggregate and form a stone. Such fears may be relieved by heating the urine containing the sediment to the temperature of the interior of the body, about 100° Fahr., when the sediment will disappear, and the fluid will resume its original clearness. Such tawny or reddish sediments are most frequently the result of indigestion, or arise from a common cold. The pinker varieties are generally associated with acute rheumatism, or gout, or with some febrile or inflammatory disease.

White, or Yellowish Gravel, consists chiefly of a crystalline salt formed from the urine, and called the *triple* or *ammonio-magnesian phosphate of lime.* This kind of gravel is always of more grave significance than the presence of red or pink gravel. The white or yellowish gravel is formed from the urine *before* it passes from the body, and the urine is therefore *turbid when passed,* and if heated does not become clear like urine containing only lithic acid deposits.

But in severe, or long-standing cases, the several sorts of gravel are sometimes mixed, or they may alternate with each other. In such cases, while heating the urine clears the lithic deposits away, leaving the fluid less muddy, the other sediments remain. If hydrochloric acid be now added the white and yellow gravel will be dissolved. If any cloudiness or opacity of the urine remains it will probably depend on the presence of mucus or pus—matters often present in, or associated with, white or yellow gravel.

As above mentioned, the passage of red or pink gravel is generally indicative of some febrile or inflammatory disease, and there are seldom symptoms referable to the urinary organs present. But when yellow gravel is passed there are usually shooting pains in the loins, running towards the groin and thigh, with desire to make water, and pain at time of doing so. In the male the testicles are often spasmodically drawn up. These symptoms are accompanied by feverishness, constituting what is popularly termed 'a fit of the gravel.' In some instances, perhaps without the least warning, the patient is seized with a most acute pain in the back and loins, accompanied by violent sickness and vomiting. There is frequent tendency to pass urine, which is scanty, high-coloured, or bloody. At length, during a violent retching, the patient experiences a sudden sensation as if he were stabbed, and from that time his acute pain gradually ceases. When this chain of symptoms happens to a person passing white gravel, it is evidence that a small gravel-stone, formed in the kidneys, has passed through the ureter (a small tube connecting the kidney and the bladder) into the bladder, where it may remain, increase in size, and become stone in the bladder, or from which, if small enough, it may pass out with the urine.

Treatment.—This varies with the kind of gravel discharged, and also during the 'fit' or acute stage, and during the interval. When a 'fit of the gravel,' as described above, occurs, the great desideratum is the relief of pain. The patient should be placed in a hot bath and be given five-and-twenty grains of chloral, which may be repeated in six or eight hours if the pain continues or returns. Dry cupping (*vide* page 501) may be used over the loins, and the bowels, if confined, should be opened by a purgative draught (Recipe 2). The patient should also drink plentifully of barley water, or linseed water, or weak tea.

[After the 'fit of the gravel' has passed away, attention must be directed to the alteration of that condition of system on which the formation of the gravel depends. When the red variety is present, a diet chiefly vegetable, and in some cases strictly so, should be adopted, and alkaline medicines (Recipe 55) should be given so long as the urine remains, as it generally is in such cases, of an acid character. This may be ascertained by testing the urine daily with *litmus* paper made and sold for such purpose. Aperients, such as Recipes 1 and 2, should be taken every other night and morning. Magnesia is also strongly recommended for some cases of red gravel, either taken alone in doses of ten grains, or with half that quantity of bicarbonate of soda, or ten grains of magnesia may be taken in a draught of soda-water. Alkaline aërated waters, as Vichy or Seltzer, are often very beneficial.

The time when the urine is most acid, and alkalies are most required, is about three or four hours after the principal meals. An alkali and an aperient may be then combined with a bitter tonic as follows. Take of bicarbonate of soda ten grains, sulphate of soda two drachms, infusion of orange peel three table-spoonfuls, for a draught to be taken a couple of hours after eating. When weakness of the stomach or indigestion, red gravel and costiveness are combined, this will be found very useful, and the salts may be increased or diminished according to circumstances.

In cases of white or yellow sand or gravel, acids are the best medicines. Dilute nitric acid may be given in doses of twenty minims in water or with infusion of orange peel. Tonics, as quinine, will also probably be required. When yellow gravel is deposited, a more generous diet may be generally allowed than when red gravel appears, and a moderate quantity of wine will usually be proper. Meat, soup, milk, eggs, good bread, sound sherry, or bitter ale, are the articles to be preferred. Sugar, pastry, sago, arrowroot, and bad wine to be avoided. Fresh vegetables, as cabbage, lettuce, mustard and cress, may generally be taken with advantage.]

If with the passage of gravel there is also mucus or pus in the urine, known by the thick ropy appearance of the deposit, and by the sediment not dissolving by heat and acids, chronic inflammation of the bladder will be present (*vide* p. 55).

GREEN SICKNESS.—*Vide* ANÆMIA, p. 42.

GROCER'S ITCH.—*Vide* SKIN DISEASES, p. 280.

GUINEA WORM.—Guinea worms are very prevalent in many parts of India. A full-grown guinea worm may be upwards of three feet long. It is cylindrical and slender, about the thickness of packthread except at the extremity, where it is attenuated to the calibre of a hair. It is opaque, of a milk-white colour. On each side there is a longitudinal line, and when examined with the microscope it is seen to be marked with numerous transverse *striæ* or stripes. The interior of the worm contains a vast number of young worms rolled up in coils. Guinea worm is most common in India during or after the monsoon. The young or ova of the guinea worm are believed to exist in the water of dirty tanks and wells, and they probably enter the system in two ways. They may penetrate through the perspiratory ducts, of which there are some 3,500 in every square inch of skin, or they may be taken into the stomach with drinking-water, making their way from that part into various portions of the body. However the ova or young worm is introduced, it slowly grows until it attains several feet in length, giving probably, during this period, little or no indication of its presence. The most usual positions in which it appears are the lower extremities, but it may be present in almost any part of the human frame. Attention is generally first attracted to it by the feeling of a thin cord beneath the skin, or otherwise by the formation of the characteristic blister always attending the presentation of the end of the worm on the surface of the skin. The blister so forming assumes the size of half a pigeon's egg, and is frequently accompanied by intolerable itching of the surface of the body, or by an eruption resembling nettle-rash. When the blister breaks or is opened, it is found to contain a glairy whitish fluid, in which the end of the worm may be found, thin and fragile as the finest hair.

Treatment.—If the worm can be felt lying beneath the skin for a considerable distance, and there is therefore reason to believe its situation is altogether superficial, it may be cut down upon, a ligature passed beneath it, and the worm may be gradually extracted. Otherwise the end of the worm as it presents in the blister must be seized and fastened to a quill. Then, by very delicate management, a little may be extracted daily, by gradually winding the worm round the quill. But care must be taken, lest the worm break in the process of extraction, or lest the part of the worm round the quill becoming dry breaks, even without the application of force. An alum lotion, composed of a drachm of alum to eight ounces of water, applied with lint over the part, both softens and strengthens the worm, and so tends to prevent breakage. Extraction should only be attempted once in twenty-four hours, when perhaps an inch, and perhaps a foot, may be gained. The force applied should not be great, and the pulling should be delicately and yieldingly managed. It requires, indeed, a sort of 'knack,' only obtainable by experience, but which some native doctors possess to perfection. A stream of water over the part will often assist extraction.

If the worm breaks, abscess and fever are the general results. The part must then be poulticed, and any matter forming liberated by means of the lancet, and if the broken end of the worm can again be seized, it should be extracted gradually, as before. Otherwise it comes away piecemeal with matter forming in various parts of its course, entailing an oftentimes long, tedious, sometimes dangerous illness.

GUM BOIL is a small abscess, generally commencing in the socket of a carious tooth, and bursting through the gum; or, if neglected, through the cheek.

Treatment.—As soon as matter can be detected it should be liberated by a prick with a lancet. If the tooth causing the gum boil is much decayed, or there is only a fang, it should be removed, otherwise there will be a succession of gum boils. Fomentations may always be used with advantage to allay pain.

HAIR.—The preservation of the hair as the natural ornament of the head is an object worthy of attention and care. In a healthy condition it is seldom more is required than occasional cutting: when it loosens and falls off, a remedy is sought generally without much discrimination. The most usual affections of the hair are as below.

1. Loosening and Falling off of the Hair.—In young persons of both sexes this may occur from natural weakness of constitution; or it frequently happens after fevers, or to

women who have suffered much during childbirth. First, the ends of the hair over the whole head should be snipped off. Then the longer hair should be carefully separated, and the weak short hair snipped about once every nine days. The surface of the head should be well washed with cold water, or with solution of 'areca nut' every morning, and then rubbed with a rough towel sufficiently to cause heat or even redness of the scalp. When this does not appear to do good, the following will be found to be an excellent application. Take of olive oil two ounces, bicarbonate of potash a quarter of an ounce, solution of ammonia a quarter of an ounce, tincture of cantharides two drachms; mix well. To be applied by rubbing on the surface of the scalp and at the roots of the hair, after washing with cold water. It should produce a glow. The use of the brush should in all cases be frequent, and it should be so employed as to cause warmth to the scalp. The above measures are more applicable for women desiring long luxuriant hair than for men. The hair of men will be better preserved strong and thick in India by keeping it cut short, and by cleanliness, and the use of the brush, than by any other means.

2. Falling off of the Hair in Patches.—If the patches are circular and small pimples are seen on the denuded part or at the roots of the hair immediately round it, there will probably be some form of skin disease, as ringworm, present (*vide* Ringworm, p. 274). A magnifying glass will often reveal small pimples or vesicles when not visible to the naked eye. When no pimples are present, and the skin of the denuded portion is quite white, it is the affection known as *Alopecia*, and for this a strong solution of borax of soda applied daily will be the best means of cure.

HEADACHE.—This disorder arises from various causes which it is important to distinguish. It is generally associated with other symptoms indicative of its origin, and every variety requires some special treatment. The principal kinds of headache are as follows:—1. *Stomach Headache*; 2. *Liver Headache*; 3. *Bowel Headache*; 4. *Nervous Headache*; 5. *Brow Ague*, or *Brow-ache*; 6. *Brain Headache*; 7. *Rheumatic Headache.*

1. STOMACH HEADACHE.—The pain is usually felt in the forehead, or over and around one eye, and is of a 'throbbing or bursting' character. It may be attended with thirst, feverishness, and feeling of sickness or nausea, when it is often called 'sick headache.' It may last for a few minutes or for many hours, and generally comes on after meals, or is felt early in the morning. Stomach headache, when the pain occurs over the eye, is often, especially in India, erroneously regarded and treated as neuralgic or malarious by quinine, whereas the remedies for dyspepsia are required for its relief. Sick headaches are very common to young persons leading sedentary lives; stomach headaches, or pain without nausea, occur to stronger persons who have exceeded either in eating or drinking, and especially when bad wine or spirits, or various indigestible articles of food, have been taken. If such headaches commence shortly after a meal, an emetic of mustard and water will often afford effective relief. For sick headache, twenty drops of sal volatile in an effervescing draught of citrate of magnesia and a cup of strong tea or coffee half-an-hour afterwards, with rest and quiet. For other kinds of stomach headache a purgative draught, as Recipes 1 and 2, is advisable. Rest, quiet, and sleep are also essential.

2. LIVER HEADACHE.—Headache arising from disorder of the liver is characterised by a sense of tightness across the forehead, the pain being of a stupefying nature. It may be felt more on one side than the other, and frequently goes off suddenly with a 'click' felt at the pit of the stomach. This form of headache may be often relieved by drinking a large draught of soda-water, or by three drops of chloroform in an effervescing draught of citrate of magnesia. If continuing,

Recipes 1 and 2 should be taken, and the person should keep quiet and try to sleep.

3. BOWEL HEADACHE.—This occurs from costiveness and from acidity, and requires the treatment for such conditions. The pain of this variety of headache is more general over the whole head than the two former.

4. NERVOUS HEADACHE.—This occurs after mental or emotional excitement, and is more common in delicate persons leading a sedentary life. Those subject to this headache are usually pale, feeble, and easily flushed or excited. The pain may be confined to one spot, or it may be general over the front part of the head. Hysterical girls are often subject to attacks of nervous pain in one particular spot, which has been likened to driving a nail into the head, and hence the Latin name *clavus* has been given to it. Nervous headache may arise without evident stomach or liver derangement, but such conditions are often present. Persons who suffer from it may not be chargeable with either eating or drinking to excess, yet they fail to treat their stomach as it requires. If not erring in quantity of food, they do so as regards quality. For instance, many abstaining from wine, beer, or alcoholic stimulants, drink tea and coffee in excess, and thus irritating the nervous system experience nervous headache. Others, intent on business or pleasure, neglect the proper or periodical hours for taking food; some, forgetful that motion is one of the laws of existence, remain in close apartments without exercise, and some again inflict injury on their nervous systems by the immoderate use of tobacco. In all the result—*viz.*, one or other variety of nervous headache—is the same. Relief at the time is to be best obtained by repose, sleep, and sal volatile in camphor water. To escape nervous headaches the habits must be altered. The immoderate tea or coffee drinker must take milk and water; the devotee to pleasure or business must relax; the indolent or sedentary must adopt regular hours and exercise; the tobacco smoker

must abandon the practice, or at least lessen his consumption; lastly, plain wholesome food must be substituted for made dishes and pastry.

5. Brow Ague, or Brow-ache.—This term is applied to pain of a very severe character affecting the forehead, *generally* above one eyebrow, or sometimes more diffused over one side of the head. From it so affecting half the head only, it has been called *hemicrania; migraine* is also another term for the affection. As it often occurs at intervals, it has been termed *intermittent headache*; when occurring to women it is frequently spoken of as *megrims*; lastly, all varieties are often included under the general term *neuralgia.* The malady in all its phases is an affection of the nerve (*supra-orbital*) which, perforating the bone above the eyebrow, is distributed to the adjacent parts. But this nerve may be affected by different causes. *First,* true brow ague is the result of exposure to malarious influences, is always most prevalent in malarious localities, and sometimes takes the place of a paroxysm of ague. This form of the malady occurs at regular intervals, as daily, or every second day, and is often distinctly confined to the course of the *supra-orbital* nerve, commencing from near the middle of the eyebrow, and passing outwards across the forehead. Sometimes there is a visible red line in the track of the nerve. The pain, while it lasts, is often very intense, and increases in paroxysms, causing the eyes to water and the nose to discharge, and rendering the sufferer utterly unfit to attend to any business. It may persist during the whole day, but ordinarily attacks of purely malarious brow-ache subside in the course of two or three hours. *Secondly,* a very similar pain may arise as the result of indigestion or dyspepsia, but as a rule this pain is more diffused over the side of the head than that depending on malarious influences, and therefore more deserves the name of *hemicrania. Thirdly,* when women have been subjected to weakening influences, such as frequent

child-bearing, prolonged suckling, or profuse menstruation, there are additional causes from which neuralgia of the head may arise; so much the more certainly if the patient has been residing in hot, debilitating, or malarious localities. *Fourthly*, brow ague may depend, and *most frequently* does depend, *partly* on one cause, and *partly* on another. It may be due to malarious influences, and be aggravated or re-excited by stomach or liver derangements, or by a low condition of system; or it may be due to stomach or liver derangements, or dyspepsia, or a low vitality, and be aggravated or re-excited by malarious influences. This variety of the disease is most frequently met with in sensitive and nervous people, especially after excitement of any kind or mental worry. Any cause, in fact, which produces a strong impression on the nervous system of those who are disposed to it will bring on an attack. Exposure to heat, and fatigue, working late at night, cold, damp, dinner parties, loss of usual rest, will frequently re-excite the malady. In women subject to the disease it often returns at or about the period of the monthly courses. It is to the affection occurring at such times that the term *megrims* is generally applied. The variety of the malady, consequent on the second, third, and fourth causes above mentioned, comes on at varying but not regular intervals; sometimes lasting a few hours, at other times two or three days, and, like the true malarial type, the pain is worse and better in paroxysms. Those who suffer from this disease often wake in the morning suffering severely, unable to swallow any food, and probably feeling sick. The head throbs and movement or conversation is painful, the face is pale, the pupils contracted, and there is often a dark appearance under the eyes. The head feels hot, and the application of cold is generally refreshing. The patient begs to be left alone, and to be kept quiet, as the only means of obtaining relief.

Treatment.—The treatment of brow ague, or *hemicrania*, must be considered with reference to the cause. In India first attacks are generally of malarious origin, and may be cured by five or six grain doses of quinine every three hours, preceded, if necessary, by Recipes 1 and 2, to open the bowels. In pure malarious intermittent headache one grain of quinine mixed with three of starch, used as a snuff, will often afford relief. Repeated attacks will be generally due to a combination of the effects of malarious or debilitating influences, and stomach or liver derangements, and therefore existing indigestion and dyspepsia must be first treated, after which tonics, as quinine, Recipe 17, may be used. When the malady occurs to females, attention to any irregularity of the monthly flow is demanded (*vide* pp. 330, 335).

During the actual attack of pain the most decided relief is to be obtained sometimes by pressure with the finger over the most painful part; sometimes by a tight wet bandage round the head; by profound quiet, and by a darkened room. Hot tea or coffee will also often soothe the nervous system and give relief; or, in some cases, a glass of wine or a dose of sal volatile. Medicines at the time of pain do not, as a general rule, do much good. Of local medicinal applications, chloroform applied to the most painful part on a piece of lint, covered with a watch glass to prevent evaporation, is probably the most satisfactory. Or a small mustard poultice may be placed on the temple or forehead. Sometimes hot fomentations give most relief, but in the majority of cases more ease is experienced from cold or ice. After the pain has passed away, the general treatment consists in attention to the bowels, in the avoidance of anything likely to cause indigestion, and in the use of quinine, as mentioned above.

[If quinine does not suffice to stop the attacks, iron should be tried (Recipe 22), and this not proving successful, arsenic (Recipe 27). But each tonic should have a fair trial of at least a fortnight's duration. Other local applications which may be obtained and used are Recipes 89, 90, 91, the latter being perhaps the most generally successful.]

6. Brain Headache.—Different from the above varieties is the form of headache occurring in older persons, and caused by what is popularly known as a 'flow of blood to the head.' It often presents in connection with threatened more serious disorders, as apoplexy, or sunstroke; or from the stoppage of accustomed discharges as from piles; in women not unfrequently occurring in consequence of the 'change of life.' In such cases the habit of body is usually full and plethoric, the complexion florid, and giddiness is apt to come on in stooping. In severe cases the pain is throbbing with redness of the eyes and flushing of the face, a feeling of tightness across the head, a fulness or whizzing behind the ears, and often thirst and feverishness.

Treatment.—If the pain is slight, purgatives, as Recipes 1 and 2, with abstinence from stimulants, restricted diet, rest from brain-work, and care against exposure to the sun, with moderate exercise, are necessary. When severe, with feverishness, rest in a sitting posture, quiet, cold lotions to the head (Recipe 83), cutting the hair short, and eight or ten leeches behind the ears will be advisable.

7. Rheumatic Headache.—Headache may be due to rheumatism of the muscles of the scalp. This will generally be attended with rheumatic pains in other parts of the body, and the pain will be felt to be *outside* the head in the scalp, becoming worse on wrinkling the forehead or otherwise moving the scalp muscles. This variety of headache should be treated by alkalies and colchicum, as advised under the head Rheumatism (*vide* p. 261).

HEART, DISEASES OF.—To distinguish the diseases of this organ requires a high degree of medical skill, and accurate knowledge of the anatomy of the organ, a correct ear to judge of the sounds, and much practice. Most of the maladies to which the heart is liable are therefore beyond the sphere of domestic medicine. But, on the other hand, there are certain disorders of the heart obvious enough to anyone, and which, when they first occur, may be met by domestic remedies, relieved, and thus prevented from becoming serious.

The apex or point of the heart moves as it beats. The point is behind the ribs on the left side, two inches below the nipple, and one inch to its inner side. The sounds of the heart are best heard on listening at this spot. These are two in number. The first sound is dull and prolonged, while the second is sharp and short. The difference between them is well expressed by articulating the syllables *lŭbb, dŭp.* In disease of the heart these sounds are altered, a blowing or gushing being frequently substituted for the healthy, clear sounds. Such changes indicate disease of the valves, which is not unfrequently a sequence of acute rheumatism. Valve disease is also caused in advanced life, by bony matter deposited on the valves from the blood, and impeding their free working.

Irregularity of pulse, palpitation, and fainting, are also symptoms of heart disease. But such symptoms also accompany indigestion, so that without a knowledge of the healthy and diseased sounds of the heart a proper conclusion regarding the true significance of such symptoms cannot be arrived at. If, however, dropsy or swelling of the legs occurs after such symptoms, unless the patient be a young woman with disordered menstruation, some serious malady may be suspected.

HEART, PALPITATION OF THE.—This denotes a sudden and irregular action of the heart, often accompanied by sensations of great distress and faintness. In the great majority of cases this does not signify any serious disorder, but is caused by indigestion and flatulence. It often accompanies hysteria, and is common during pregnancy. It is known from the palpitation or other symptoms of the kind attending serious organic or valvular disease by not being permanent, and by often occurring in the young, in whom heart disease is not common; also by absence of change in the sounds of the heart. To relieve palpitation give a teaspoonful of sal volatile in a glass of water, or some ether, or a little wine, and attend to the state of the digestion, and use remedies for constipation, if such condition prevails. Strong tea or coffee has been sometimes known to cause palpitation.

Heart, Spasms of the, also called *Angina Pectoris*, and *Breast Pang*.—This occurs chiefly in advanced life. It consists of a temporary stoppage of the organ, and is attended with intense pain and anxiety. In this disease a stimulant, as wine or brandy, is required immediately, and afterwards remedies to relieve any attendant dyspepsia.

HEARTBURN.—This term is applied to a feeling of heat in the chest and throat, often accompanied by hot, acrid eructation of watery matter from the stomach into the throat (*vide* Water Brash, p. 134). This malady has nothing to do with the heart, but is a symptom of indigestion, and should be treated with laxative and alkaline draughts, as Recipe 2 or citrate of magnesia (*vide* p. 13).

HEMICRANIA.—*Vide* Brow Ague, p. 199.

HEPATIC DISEASES.—*Vide* Liver, p. 219.

HERNIA.—*Vide* Rupture, p. 438.

HERPES.—*Vide* Skin Diseases, p. 279.

HICCUP.—Hiccup consists of sudden, short, convulsive inspirations, attended by a peculiar sound produced in the *larynx* or upper part of the windpipe, and immediately followed by expiration. These convulsive inspirations ordinarily occur in paroxysms, and may succeed each other at intervals of a few seconds. The paroxysm may last only a few minutes, or may extend to hours or days. Hiccup in the great majority of instances arises from indigestion, or from food being hastily swallowed. But it is sometimes present as a symptom during the progress of diseases of the liver and stomach. When depending on indigestion it may be generally relieved by taking a few grains of bicarbonate of soda and ginger, or by a little brandy and water. Sometimes in the case of indigestible food lodged in the stomach vomiting is required to produce relief, and a mustard emetic may be given. Spirits of camphor, chlorodyne, and sal volatile are also good remedies. Swallowing a piece of ice will sometimes give relief. When the attack is slight it may often be stopped by making a very full inspiration, and then holding the breath as long as possible. Strong pressure, as a belt tightly drawn round the waist, will sometimes stop hiccup. Or pressing firmly near the end of the collar bones next the throat with the thumb may be successful.

HOARSENESS.—This depends on irritation, generally arising from cold, about the top of the windpipe and back part of the throat. It is a symptom of croup, and of various other minor affections of the parts mentioned. It may also arise from a common cold (*vide* LOSS OF VOICE, p. 227).

HOOPING COUGH.—This is a contagious cough happening generally to young children, but sometimes to adults, and usually only once in life. It commences as a common cough or cold, but after some days the cough comes on in fits, after which the breath is drawn in with a long effort, and accompanied by a peculiar sound or 'whoop.' In bad cases there may be twenty or thirty paroxysms in a day, and several fits of coughing without the whoop being heard. Vomiting frequently attends the fits of coughing, and the suffocation of the child may appear threatened, when suddenly the characteristic whoop is heard, which terminates the paroxysm, and the child returns to its play. This spasmodic cough is very exhausting and very trying to weakly children, often exciting vomiting and continued rejection of food. Hooping cough may last days, weeks, or months, and the danger of infection lasts six weeks after recovery. Simple hooping cough is never fatal; but unfortunately hooping cough may excite other maladies of a more dangerous character. Thus in most cases there is some degree of *bronchitis* attending the complaint, which is shown by hurried breathing, feverishness, and by wheezing heard in the chest (*vide* p. 74). In some cases *inflammation of the lungs* is even induced (*vide* p. 232). Or there may be, especially in weakly children, tendency to *hydrocephalus*, marked by sudden startings from sleep and rolling of the head (*vide* p. 64). *Convulsions* may also be excited, the approach of which is indicated by contractions of the fingers or toes, or by turning in of the thumb to the palm of the hand (*vide* p. 100). Lastly *diarrhœa* may supervene (*vide* p. 117).

Treatment.—During the paroxysms of cough, the child's back should be supported with one hand, and the forehead should be supported with the other. Mucus coughed up, or anything vomited, should be wiped away from the mouth, and the back should be gently rubbed. In the intervals between the paroxysms of cough the chest should be daily rubbed with equal parts of brandy and salad oil, or with soap liniment; the bowels should be regulated by castor oil or senna, and Recipe 31 should be given. If the spasms of cough are severe, and there is no chest complication, a bath at 98° Fahr. for ten minutes every night will be salutary. This, instead of weakening, will strengthen the child, by increasing the action of the skin, and enabling it to do its part towards throwing off the disease, while it allays irritability and causes better nights. To lessen the depression caused by the fits of coughing, ammonia is valuable. Four drops of sal volatile should be given to an infant one year old, and eight drops to a child three years old, several times daily, or after each fit of coughing, in a little milk and water. The diet should also be well attended to, and no indigestible food allowed. In the latter stage of obstinate hooping cough nothing is so serviceable as change of air. But in the earlier periods of the malady there is often considerable feverishness and tendency to bronchitis. When such conditions prevail the patient should be kept warm, and the exposure which change of air necessitates should not be thought of. Complications, as bronchitis, convulsions, affections of the head and bowels, must be treated as mentioned under such headings.

[Numberless remedies have been tried to cure hooping cough, but none will always succeed. Dilute nitric acid in ten-drop doses, taken in a tablespoonful of water, is often beneficial, and the dose mentioned may be given to a child two years old. Recipes 34, 35, 36, 37, may be procured and tried in succession. Hooping cough frequently causes great debility, and tonics, as quinine and iron (Recipe 21), should then be given, in doses corresponding to the age of the child (*vide* p. 3).]

HOUSEMAID'S KNEE.—This term is applied to inflammation of the 'bursa,' or little water-bag situated over the knee-cap. The *front* of the knee joint is swollen and tender, and there is considerable pain. It results from injury or from constantly kneeling; hence the term 'housemaid's knee.' The swelling should be leeched, warm fomentations should be applied, and perfect rest enjoined. After recovery a bandage should be worn for some weeks.

HYDROCEPHALUS.—*Vide* WATER ON THE BRAIN, p. 64.

HYDROPHOBIA.—The saliva from the mouth of a rabid animal, as a dog or jackal, is the poisonous agent causing this disease; and a very slight wound, either from teeth or claws, if saliva be on the latter, is sufficient to introduce the poison into the system. After a bite from a mad dog hydrophobia may come on in the course of some weeks, or it may be delayed months, or even, in exceptional cases, not appear for years. It does not, however, follow that everyone bitten by a mad dog must suffer from hydrophobia. The saliva may be wiped off by clothing, through which the animal's fang passes; or otherwise the person may escape without any assignable reason.

Symptoms.—In most cases there is slight irritation at or near the scar of the wound, and there may be vague feelings of uneasiness, gloom, with irritability of temper and frightful dreams; also in many cases fear and dismay lest hydrophobia should occur. After a few hours or days the patient complains of stiffness of the neck and difficulty of breathing, which suddenly pass into suffocative spasm, most probably on some occasion when the patient attempts to drink. The horror of water or fluid is generally very marked, the noise or sight of water, or a rush of cold air, producing convulsions. The patient now spits and foams, clawing at the throat as if to remove some obstruction. In two or three days the patient dies from exhaustion.

Treatment.—Recovery from hydrophobia is very rare. Opium, chloroform, or chloral should be given to relieve pain, thirst may be alleviated by ice, and mustard poultices should be applied to the upper part of the chest.

[Mercurial fumigation may also be tried, and may be effected as follows. Place the patient on a cane chair with two or three thick blankets fastened round the neck, so as to hang in front and behind. The sides of the blankets should be well wrapped over and secured. Then from the back of the chair place underneath the seat a pan of live charcoal, or a spirit lamp, above which, supported by a wire stand, or by two bricks, a tin plate containing three drachms of calomel must be arranged, so that the latter may become well heated. Have also outside a kettle of boiling water, kept boiling on another charcoal pan. The steam from the kettle spout must be conveyed underneath the blankets by a tube or other means. As the tin plate becomes heated the calomel evaporates or sublimes, and watery vapour, or steam impregnated with mercury, is conveyed to the whole surface of the body, while copious perspiration will also be induced. When the calomel has all sublimed, the patient should be put to bed, care being taken that no cold air plays on the body, and for some hours the perspiration should be encouraged by heavy clothing.]

Symptoms of Rabies or Canine Madness.—The dog affected is at first restless and irritable and hides in corners, while food is refused. The look is suspicious and 'sneaking,' the tail drooping, and there is often redness or watering of the eyes. Sometimes the animal wanders about looking for bits of paper or pieces of straw, which it seizes and eats. It is also fond of rubbing the nose on cold objects. The bark becomes changed and hoarse, the hair set or 'staring,' and the dog snarls and snaps at children and others with whom he was previously on the best of terms. In a short time saliva begins to flow from his mouth, and the throat becomes inflamed, but there is no dread of fluid, as in the human subject, the dog lapping water during the whole illness, which, however, is often not swallowed, but flows out of the mouth.

Treatment of the Bite of a Rabid Animal.—There is reason to believe that the poison remains dormant near the wound until hydrophobia is excited. It is believed that it does not, like snake poison, enter the system immediately. Hence the greater amount of benefit to be expected from cutting out the bitten part, which should be thoroughly performed, and water dressing applied. If not done at the time it should be effected days or even weeks afterwards, *should the person appear fearful of hydrophobia.* If the injury is in such a position as to forbid the use of the knife, the parts should be well scarified, and bleeding encouraged by suction, or by the use of cupping glasses. But when the patient is not seen until the wound is healing, it will be better in the *absence of fear*, and in the absence of symptoms, to leave it alone.

If after a bite from a mad dog the person will not submit to the knife, or if a sharp knife is not at hand, strong nitric acid or sulphuric acid, or caustic potash, or boiling oil, may be applied to the wounds. One or two drops of either of the agents named should be dropped into the wound, taking care that the fluid used does not run over the surrounding skin. Or the *actual cautery* may be used. This means a red-hot iron, such as a thick iron wire, introduced for a few moments into the wound. It is stated that the pain of the actual cautery is not nearly so acute as is believed, especially if the iron is very hot, and if it is pressed firmly against the part. Filling the wound with gunpowder, and flashing the gunpowder, is also a ready and successful method of destroying the virus which may have been introduced.

HYPOCHONDRIASIS.—This condition, which is popularly known as *hypped* or *the vapours*, is common in India, and may be regarded as the correlative in the male sex to hysteria in the female. It may depend on two very different causes. It may arise from too good living and too little exercise, combined with absence of mental occupation—from, in short, a too sluggish existence. But it may also originate from overworking the brain at desk or office. In the first form of the malady the hypochondriac usually fancies himself the subject of various bodily ills, and does not believe if told there is little the matter with him. Very frequently there is some functional disorder of the liver, or indigestion present, which laxative medicines and exercise in the open air will soon carry off. If these means are not taken, and if exercise is not continued, the hypochondriac from the above causes, seldom possessing internal or intellectual resources, and being too indolent for physical exertion, takes to pondering over his own morbid or fancied morbid feelings, magnifying trivial ailments into importance, and ending by feeling his own pulse, examining his own tongue, and observing his general bodily condition many times a day. When the hypochondriacal state arises from overwork, bodily ailments are less the subjects of notice. But the patient loses bodily energy, becomes weak and sometimes emaciated, and there is sleeplessness, dreaming, and a feeling of utter misery, with an undefined dread of something wrong occurring. The heart, the lungs, or the liver are also sometimes erroneously supposed to be affected. For the proper treatment of this malady the cause must be sought, and in one set of cases employment for the mind will be wanting; in the other class, exercise for the body. The person suffering from the effects of severe or long-continued mental labour will require relaxation and bodily exercise; the man having nothing to do will require some employment for the mind. The latter is not likely to be made too severe; but the mistake of taking spasmodic exercise, violent one day and none the next, is often made by persons suffering from mental strain. But it is scarcely possible for him who desires to excel in mental work to vie with an athlete, or *vice versâ*. The two things are rarely compatible at all, and never for any long period. The above advice is, however, rather to be regarded as a means of maintaining health, or of recovery from slight attacks of the malady, than as the cure of serious ailment. Neither do medicines do much good at any time. When a person is really 'hypped,' there is only one decisive remedy—namely, change of air and scene. Whether the condition has arisen from overwork or from a sluggish existence, change of air, scene, and occupation are the requirements. A very short time will often work wonders, and it is in such cases that the ability to take three months' leave for the trip to England is invaluable. Neither, so far as business is concerned, need there be any hesitation in leaving; for work done in the 'hypped' condition is seldom satisfactory. Indeed, it often happens that 'home sickness,' or longing for home, known as *nostalgia*, is a prominent idea in the mind of the hypochondriac. And this is especially the case with Natives of one part of the Eastern Empire serving in another, and who are often the subjects of the hypochondriacal condition. It would almost appear, in some cases, as if this longing for home were nature's method of pointing out the path of cure. These remarks may well be closed with the caution that low spirits are *not* to be combated by stimulants, nor sleeplessness by opiates. The 'hypped' person having recourse to stimulants, or to chloral, pursues a dangerously rapid path to mental imbecility and to physical incapability.

HYSTERIA.—This is the term applied to a deranged state of the constitution and nervous system of females; especially those in easy circumstances, and of sedentary habits. Hysteria shows itself by a long train of nervous symptoms, and secondly by attacks of convulsions. Among the former are flatulency, hiccup, palpitations, difficulty of breathing, choking sensations, a feeling as of a ball in the throat, and loss of voice. Hysterical pains in various parts of the body are also very common. One called *clavus* is described as like a nail being driven into the head (*vide* p. 198). The left side, the nipples, the joints, are also often affected, and the pains complained of are always *terrible*. The skin is touched, and the patient screams; but on pressing firmly there is no increase of pain, which would be the case were inflammation and real disease present. The face meanwhile is not worn, and expresses no suffering, while the temperature of the body, as shown by the clinical thermometer, is not increased, which would be the case if inflammatory disease were present. There may also be *hysterical paralysis*, or stiffness of the joints. But such disorders are not real, although they curiously simulate the true disease which in the mind of the patient is believed to exist. Frequently the monthly functions are irregular.

Similarly, hysteric convulsions, or the hysteric fit, is very different from other convulsive affections. There is no insensibility, and the countenance is natural. The patient, if she falls, does not do so heedlessly, but in some comfortable place, and carefully avoids injuring herself. There are convulsive movements of the limbs, which are, however, still partly under the control of the will, and there is often alternate crying and laughing. The fit is generally preceded by the feeling of a ball rising in the throat, and after it there is frequently a copious discharge of light-coloured urine. Hysteria is much more rare in the married than in the single. For distinction from other kinds of fits, *vide* article FITS, p. 182.

Treatment.—During the paroxysm cold water, vinegar, or eau de Cologne may be sprinkled on the face, smelling salts applied to the nostrils, and the extremities should be well rubbed. If the patient can swallow, a tea-spoonful of sal volatile in a wine-glass of water may be administered. In the intervals between the fits, the use of good food, good air, and attention to the bowels will generally remedy the hysteric state. If the monthly flow is deficient or irregular, attention must be directed to this condition (*vide* AMENORRHŒA, p. 330). Active exercise and cold bathing will always prove powerful adjuncts in the treatment.

In cases in which hysteric paroxysms are unduly prolonged or associated with unusual symptoms, there may be some affection of the urine requiring skilled medical advice. A form of nervous disturbance much resembling hysteria, but of very serious import, sometimes attends albuminuria or Bright's disease of the kidneys.

HYDROCELE signifies a collection of water in the serous cavity or bag enveloping the testicle. It forms a pear-shaped swelling, smooth on its surface, soft to the feel, free from pain and tenderness, but causing uneasiness from its weight. It may be originated from injuries (*vide* INJURIES OF THE PRIVATES, p. 428), or it may occur without any assignable cause. It is distinguished from 'broken belly,' or *rupture*, by never going away, even when the person lies down, which a rupture, unless strangulated, will do; also by the fact, that when the patient coughs, there is no impulse, or 'shake,' given to *hydrocele*, while a rupture moves with the cough. On placing a lighted candle behind a hydrocele, the light may be discerned through the contained water, which is not the case in rupture (*vide* RUPTURE, p. 438).

The only curative method is a surgical operation known as 'tapping.'

IMPETIGO, or *Crusted Tetter.*—*Vide* SKIN DISEASES, p. 282.

INFLAMMATION.—Inflammation may be broadly defined as an unnatural excess of vital action, which manifests itself in increased vascularity and sensibility of the part attacked, and which may occur at any part of the body. Inflammation of internal organs is the most dangerous; it produces heat, swelling, and redness from an engorgement of blood, attended by pain, increased on pressure. If extensive, the whole system sympathises with the local mischief, and there is fever, quick pulse, generally constipation, and always high-coloured urine.

Unless cut short in the first stage, inflammation goes on till an effusion of liquid matters takes place in the inflamed part, and what are called *lymph* and *serum* escape from the blood. These matters quickly become *pus* (or matter) and the result is an abscess (*vide* ABSCESS, p. 36). During the formation of matter, throbbing pain takes place, and if the collection is large, there is generally shivering at the commencement. In the first stage of inflammation, if the parts affected can be reached, lint, dipped in cold water and covered with oiled silk, is the best application. But when matter is forming, or has formed, poultices should be applied, and as soon as the presence of matter can be detected either by the fingers, or by the 'pointing' or prominence of the abscess, the part should be pricked with a lancet, and the matter allowed to escape.

Inflammation often leads to *mortification* or *sloughing*, or may cause an ulcer or open sore.

INFLUENZA.—This is a severe epidemic catarrh; it often spreads rapidly through large tracts of country. The usual symptoms are those of cold in the head with cough, accompanied by feverishness lasting some days, or even weeks. Pains in the limbs and body are also present. In old and feeble persons inflammation of the lungs often supervenes. A warm bath may be given at the outset, and perspiration promoted; afterwards, nourishing diet and stimulants are desirable. Elderly persons in particular require a generous diet.

IRITIS.—*Vide* DISEASES OF THE EYE, p. 149.

JAUNDICE.—In this disease the skin becomes greenish or yellow, which has led to the malady being often spoken of as *the green* or *the yellow jaundice*, as if there were two distinct kinds. The difference of colour, however, simply depends on the amount of bile contained in the blood, and does not signify a different affection. The whites of the eyes assume a similar greenish or yellow tint; vision is often affected, everything appearing yellow; the bowels are confined, the fæces are white or clay-coloured, but the urine is of a deep yellow; the skin generally itches, and there is a bitter taste in the mouth. The cause of all these appearances is the presence of bile in the blood. From some one of various causes the bile is not passed by the liver into the bowels as it should be, but escapes into the blood, and is partly passed away by the kidneys through the urine. The jaundice condition may be either *permanent* or *temporary*.

Temporary jaundice may be the result of congestion or inflammation of the liver, or may arise from a gall stone in the bile duct, preventing the outward passage of bile. It also occasionally occurs during fevers, without any readily assignable reason. In treating any variety of jaundice, the cause must first be sought, and remedies applied according to the malady of which the jaundice is a symptom (*vide para.* on the Passage of GALL STONES, p. 184). If no other cause of the jaundice is clearly evident, it probably depends on temporary *catarrh* of, or congestion about, the bile ducts, and Recipes 1 and 2 may be taken every night and morning; while a mustard poultice should be applied daily, or as often as can be borne, over the liver. The food should be light and nutritious, and stimulants should be avoided. If any are required, claret or weak brandy and water will be best.

[In cases of jaundice it will be advisable for the patient to procure Recipe 9, to be taken at night, and Recipe 6 for the morning; to be re-

peated every or every other day, according to the effect produced. After the bowels have been well purged, the draught and pills may be taken every other night and morning. Recipe 52 should also be taken by a weakly person or if dyspepsia is present; and Recipe 53 by a stronger person, when there is no dyspepsia, three times daily.]

Permanent jaundice depends on some serious or organic disease of the liver or other internal organ, and the disease thus producing the jaundice generally ends fatally.

JOINTS, INFLAMMATION OF.—Inflammation of the joints occurs as a consequence of rheumatism, gout, and scrofula (*vide* those diseases). It is to scrofulous inflammations of the knee and hip that the term 'white swelling' has been commonly applied. But inflammation of a joint sometimes occurs without any assignable cause, or without any evident connection with other maladies; or as the result of accident or injury. The joint affected becomes swollen, tender, and painful, and if large, as the knee, there is also general feverishness. Leeches, cold lotions, or fomentations, and rest are the appropriate remedies. If stiffness remains after the acute stage, liniments, plasters, and bandages should be used.

KIDNEYS, INFLAMMATION OF THE.—This is known by the pain in the loins, usually on one side, but on both if both kidneys are affected. The pain strikes downwards towards the groin, and the testicle is often drawn up from spasmodic action of the muscles. The pain is of a dull, diffused, deep-seated character, increased by firm pressure, by coughing or sneezing. It is also increased by straightening the leg of the affected side, and the patient lies on his back, or perhaps on the affected side, with his leg or legs drawn up. There is also often numbness in the inner part of the thigh. The urine is scanty, and voided painfully at short intervals, and often becomes bloody. There is usually a considerable degree of feverishness, and the bowels are mostly confined.

The causes of inflammation of the kidney are cold, external injury, long-continued and violent exercise of the muscles of the back, as in riding, gravel, diseases of the bladder and urinary passages.

Treatment.—Leeches to the number of one for every year of age up to thirty should be applied over the most painful part; the bowels should be well opened by Recipes 1 and 2; medicines encouraging perspiration should be given, as citrate of magnesia (*vide* p. 13), and the patient should drink freely of barley water, rice water, tea, or linseed tea. A hot hip-bath should be given daily, and pain at night may be alleviated by Dover's powder or chloral. At the same time perfect rest should be enjoined, and the diet should consist of nourishing broths and gruels.

Inflammation of the kidney often lays the foundation of the condition already described as 'Bright's Disease' (p. 71.)

LARYNX, INFLAMMATION OF THE.—The larynx is the upper portion of the windpipe, containing the parts forming the organ of voice. Inflammation of this part often occurs, either in conjunction with common sore throat or inflammation of the tonsils, or otherwise without such complication. It may be brought on by cold, or by too great exertion of the voice. When inflammation of the larynx is severe it is a dangerous disease. There is pain and fever, tightness about the throat and loss of voice; respiration and swallowing are difficult; there is urgent fear of suffocation, sleeplessness, gasping for breath, and towards the end convulsions. The throat may be seen red and swollen within, and on pressing the tongue downwards the upper part of the larynx or 'epiglottis' may be seen, erect, and inflamed (*vide* p. 397). The small aperture into the windpipe is, from the swelling of the parts, more or less closed. This condition may occur to such an extent as to produce mere hoarseness, or it may go on to total loss of voice, and ultimately cause suffocation.

Treatment.—When the disease is severe very active measures are required. Leeches should be applied to the *upper part of the chest*—one for each year of the patient's age to the number of thirty. The steam from hot water should be frequently inhaled, and hot moist sponges should be applied to the throat. Dover's powder should be given in five-grain doses three times a day, and if necessary the bowels should be moved by Recipes 1 and 2. Throughout the treatment the patient is to be kept from talking, and be in a warm room free from draughts, the temperature of which should be maintained as equable as possible, and not be allowed to sink below 80° Fahrenheit. The air should also be rendered moist by the occasional introduction of the steam from a kettle of boiling water. The diet must consist of fluids, as strong soups and broths, and no stimulants should be allowed. But it often happens that the patient is unable to swallow even the fluid diet which is most proper.

[As soon as possible calomel and opium (Recipe 43) should be obtained and given instead of the Dover's powder mentioned above. The calomel should be continued until there is a metallic taste in the mouth, or slight soreness of the gums. If the patient is a strong, robust person, it will also be advisable to give the tartar emetic mixture (Recipe 33).]

LEPROSY.—Leprosy is a very common affection, especially among the lower classes, in India, but Europeans do not suffer much from it. The form most frequently met with comes on with loss of sensation in the fingers and toes. After a time these parts become curiously nodulated. The skin becomes thickened and presents small prominences, varying in size from a pin's head to a walnut; sometimes the whole body is affected. Ultimately the parts ulcerate, the ulcers gradually eating away the flesh and bones, so that the fingers and toes are lost. Treatment of this malady is very unsatisfactory. There is no cure for the disease, but its progress may be delayed by good diet, fresh air, and tonics, the best of which is arsenic. Gurjon oil is also much recommended. This is a wood oil, and is used mixed with lime-water, both internally and externally. The dose of gurjon oil is two drachms twice daily, with an equal quantity of lime-water. One part of the oil, with three of lime-water, must be rubbed into the whole body and limbs for two hours twice a day.

LIVER, DISEASES OF THE.—The liver is the largest organ in the body. It is situated in the right side, stretching across to the left. It commences as high as the fifth rib, in a line immediately below the nipple, while its lower border comes down as low as the lower margin of the ribs. Its size, however, varies a good deal in health, and in women who wear tight stays it may come down an inch or two lower. Its function is the secretion of bile, a fluid necessary to digestion, by which is effected the conversion of the food prepared by the stomach into material or 'chyme' required for the nourishment of the body. It also prepares the materials which are destined to maintain animal heat by the slow combustion which a portion of the blood undergoes in the lungs. A third purpose of the liver is to remove effete or useless matter from the blood, *i.e.* to purify that fluid: and this effete matter is the main agent in the formation of the contents of the bowels into a suitable condition and consistence for their removal without injury. Whenever the liver is disturbed or disordered, there cannot be health in the rest of the system. Next to the stomach itself, it is the part of the body most directly influenced by food or drinkables. It was at one time the vulgar custom to refer nearly all diseases to the liver. This being found erroneous, disorders of the liver have by some been regarded as trivial. But the truth lies between the two extremes. Very many deviations from health, both of the general system and of particular organs, depend on primary disorder of the liver. The stomach and bowels, even the kidneys, lungs, throat, and brain, sometimes present symptoms, which careful investigation discovers to have their seat and origin in the liver.

The principal diseases affecting the liver are—1. *Biliousness*; 2. *Congestion*; 3. *Acute Inflammation*; 4. *Chronic Inflammation*; 5. *Abscess*; 6. *Hepatalgia, or Neuralgia of the Liver.*

1. BILIOUSNESS, OR BILIOUS ATTACK.—This may depend on some irritating material taken into the stomach, producing vomiting and disorder of the liver and bowels. Or it may depend on a continued course of high and improper living, which, for some time taken with impunity, at length induces that condition to which the term 'bilious' is commonly applied. Or otherwise, biliousness may be occasionally symptomatic of the state of the liver next described under the term 'congestion.' An ordinary bilious attack is characterised by feelings of faintness and nausea; then vomiting occurs, first of the contents of the stomach, next of acrid sour bile. This vomiting is sometimes very severe, continued, and distressing, and is probably accompanied by griping pains in the bowels. The best treatment is an emetic of mustard and water, to bring up offending matter, and to clear the gall bladder of bile. After which a purgative should be administered (Recipes 1 and 2). Effervescing drinks will always be grateful, and if much pain is complained of, a mustard poultice may be applied to the pit of the stomach, and after vomiting has ceased a dose of chlorodyne may be given.

2. CONGESTION OF THE LIVER.—This term implies a distension of some part, or of the whole, of the organ with blood. Or sometimes the gall bladder and gall ducts only are implicated, which is then spoken of as *catarrh* of the bile ducts. The causes are the influence of hot climates, which throws a greater amount of secretory work on the organ, some of the effete material, which would in temperate

regions pass away by the lungs, being removed from the system by an increased flow of bile; sudden change of temperature and exposure to chills and cold; repeated cold stages of remittent and intermittent fever, during which the blood is driven forcibly into internal organs, which thereby become unnaturally distended or stretched; overfull and too stimulating diet; abuse of stimulating liquors; solar exposure; residence in crowded houses; a sedentary life; too much sleep.

The symptoms are sallowness, coated tongue, depression of spirits, defective appetite, headache, bowels acting irregularly, stools dark and depraved, or sometimes light in colour, nausea, a sense of weight and fulness in the right side, and pain or uneasiness in the tip of the right shoulder, or in the shoulder blade.

Treatment.—In robust constitutions, and in persons recently arrived in India, leeches may be required. In other cases Recipes 1 and 2 should be taken, with care and abstinence in diet. Mustard poultices should be applied over the liver, and moderate exercise short of fatigue should be taken.

[If the above treatment is not successful, it will be desirable for the person to take several mercurial purges, as Recipe 8, followed by Recipe 6. In two or three days after the bowels have been frequently opened Recipe 7 will be useful. Iodine paint may also be applied daily over the liver, until the skin becomes tender. In chronic cases, Recipe 53, if there is tendency to jaundice, and Recipe 54, if there is no tendency to jaundice, will be beneficial. The nitro-muriatic bath should also be used (*vide* p. 501).]

3. LIVER, INFLAMMATION OF THE.—The causes of inflammation of the liver are precisely similar to those of congestion. Congestion is, indeed, the first step towards inflammation, and if not checked, will often terminate in the latter malady. Inflammation of the liver is also frequently connected with

dysentery, appearing then to arise from absorption of dysenteric material secreted in the intestines, by the veins passing between the latter parts and the liver.

The symptoms of inflammation of the liver are those of congestion in an aggravated degree. There is pain in the right side, increased by pressure under the ribs, by a long breath, by coughing, by lying on the left side. There is also pain in the shoulder, and often a dragging sensation at the pit of the stomach. The whites of the eyes may turn yellow, the urine is highly coloured, there is nausea or vomiting, there may be either costiveness or diarrhœa, and the stools may be dark or light in colour. The disease is generally marked by febrile symptoms and shivering, but in some cases there is little or no febrile action. Sometimes it may be distinctly made out that the liver is enlarged, but often this is not the case. Inflammation of the liver is sometimes accompanied by dysentery.

When the pain is very acute, with much fever, the covering of the liver will be chiefly involved in the inflammation. If the bladder is irritable, and the pain more towards the loins, the under part of the liver is most affected. When vomiting is a prominent symptom, with perhaps hiccup, and pain at the pit of the stomach, that part of the liver nearest the former organ is most implicated.

Treatment.—Inflammation of the liver occurring in strong, robust Europeans, especially if newly arrived in the country, may require bleeding from the arm; or more usually, the application of leeches to the right side over the organ. Such measures, however, are not very frequently necessary, and should not be attempted unless under medical supervision. When the symptoms of inflammation of the liver, as above detailed, occur, it will be advisable, in the absence of medical advice, to administer a purgative, as Recipe 1, followed by a saline draught, Recipe 2, four hours afterwards. If the bowels are costive, and there is no dysenteric complication, these medicines should be repeated every or every other day, so that a continued free action may be secured. But if there is tendency to dysentery, after the bowels have been once thoroughly cleansed, it will be advisable to give ipecacuanha and Dover's powder (Recipe 39). Mustard poultices should be applied daily, or as often as can be borne, over the liver, and the diet should be very light and easily digestible. Milk, broth, beef tea, toast and biscuits, may be taken, but no stimulants should be given, as they tend to increase the mischief. Effervescing solutions may be taken with benefit, as they allay thirst and sickness.

[For a case of inflammation of the liver without accompanying dysenteric symptoms, occurring in a moderately healthy and robust person, it will be desirable, when the materials are available at the onset, to adopt the tartar emetic treatment, as soon as the bowels have been once thoroughly moved by the means indicated above. Two grains of tartar emetic are to be thoroughly mixed in a mortar with two drachms of nitrate of potash and the mass divided into eight powders, one of which should be given in two ounces of water every hour. If this medicine, as is sometimes the case, acts on the bowels, the repetition of the purgative doses, Recipes 1, 2, will not be required. If the tartar emetic produces distress by exciting great nausea or vomiting, or too much purging, or great depression, the proportion should be reduced to one grain in the eight powders. The latter should be given every hour until local pain and tenderness subside. These medicines act on the skin and kidneys, promoting both perspiration and the secretion of urine, thus tending to cool the body and diminish fever. They also lessen the force of the circulation and reduce the inflammation. They also render the blood alkaline, a condition regarded as antagonistic to the inflammatory state. But if the smaller proportion of tartar emetic, as above mentioned, should produce distressing nausea, or vomiting, or purging, or in any case when pain and tenderness subside, other remedies less powerful, but still calculated to promote perspiration and the secretion of urine (Recipes 39 and 73), should, if available, be given every three hours, but at different times. If, after the subsidence of the acute symptoms, pain or tenderness continue, a blister should be applied, and podophyllin with nitric acid (Recipes 7 and 12) should be given, the latter being most useful if the skin is dry and the bowels constipated.]

4. **Chronic Inflammation of the Liver.**—This condition

may be a sequel of the acute form, or it may come on so gradually that it is often long unattended to. The first symptoms are sensation of weight in the right side, occasional pains of a shooting character, with loss of appetite, flatulence, and other dyspeptic symptoms. These symptoms are very similar to those of congestion, but instead of disappearing as the temporary congestion subsides they become permanent. Then the liver becomes enlarged and may be felt below the ribs. From the pressure of the enlarged liver upwards, there is also cough, difficulty of taking a long breath, and pain in one or both shoulders. The countenance becomes sallow, the skin dry, the patient desponding and debilitated. The stools, which may be loose or the reverse, are generally clay-coloured, while the urine is often high-coloured from bile. Sometimes the person becomes jaundiced.

Treatment.—Saline aperients in the morning, as Recipe 2, and great care in diet, with avoidance of stimulants, are the principal means of relief. But should the disease persist, as it probably will, change to a temperate climate must be taken.

[Nitro-muriatic acid (Recipe 54), taraxacum and acid (Recipe 53), podophyllin (Recipes 7 and 12), iodide of potassium (Recipe 45), all prove useful in the condition above described; sometimes one prescription, sometimes another, agreeing best with particular individuals, and they may be tried in the order named. The nitro-muriatic bath (Recipe 113) should also be used. But any kind of medicine will only prove palliative. For a radical cure, change to a temperate climate is necessary.]

5. ABSCESS OF THE LIVER.—Abscess of the liver originates —1. *Suddenly, during an attack of congestion, or acute inflammation.* 2. *Gradually, during chronic inflammation.* 3. *Insidiously, without previous inflammation.* 4. *During the progress of dysentery.*

1. *Suddenly, during an attack of congestion, or acute inflammation.*—If during such conditions severe shivering

occurs, followed by cold sweats, obstinately furred tongue, scanty and high-coloured urine, depositing much sediment, fever increased at night, and diarrhœa, there will be every reason to fear formation of abscess.

2. *Gradually, or during chronic inflammation.*—The most frequent manner, however, in which abscess manifests itself is after the prominent symptoms of acute inflammation have been relieved. The patient does not recover health, remains weak and languid, and after a variable period experiences occasional chills with feverishness towards evening. This soon assumes a hectic character, and is accompanied by a tongue furred in the centre, red at tip and edges. Weight and uneasiness are experienced in the right side, and the palms of the hands are dry.

3. *Insidiously, or without previous inflammation.*—But liver abscess sometimes occurs without any previous decided symptoms, or there may be simply a vague sense of uneasiness or obtuse dull pain, or feeling of weight in the side, with perhaps slight cough. These anomalous feelings are signs often scarcely appreciable by the too frequently doomed patient; or, if observed, are considered too trivial to induce application for medical advice. Often it is not until shivering and cold sweats, with swelling of the liver, appear, that the serious nature of the disease is recognised. A medical officer of repute states, 'I have known persons die of abscess of the liver who never in life had experienced any of the symptoms.' The necessity, therefore, of paying attention to even slight symptoms pointing in such direction is evident.

4. *During the progress of dysentery.*—That a very large proportion of fatal cases of dysentery are complicated with liver abscess is an established fact. And the connection has been attributed to absorption into the liver of morbid matter generated during dysentery. If during the progress of dysentery, the languor, emaciation, and evening fever, are

greater than can be accounted for by the violence of the dysentery, and if the condition of tongue before noted appears, with uneasiness and weight in the side, there will be little doubt that abscess has occurred. A fit of shivering in addition would render the matter certain.

When abscess has formed in any of the modes detailed, it may appear as a swelling in the side or near the pit of the stomach, when it is said to 'point' externally; or it may burst into the stomach and be emptied by vomiting; or into the bowels, and the matter may pass away with the stools; or into the lungs, when the contents may be coughed up; or otherwise into the cavities of the chest or bowels, from which there is no escape.

If the abscess points externally, in the absence of medical aid and of certain instruments used in such cases, the skin must be allowed to become red, when it may be opened with a lancet and poultices applied. Then the abscess, if not large, may discharge its contents, contract, heal, and the patient recover. In other instances in the absence of medical aid and of particular instruments little can be done except supporting the strength of the patient by good diet, and relieving pain by chloral or by opium or its preparations.

6. Hepatalgia, or Neuralgia of the Liver.—The liver, as is the case with many other organs, is subject to a nervous affection. The symptoms are slight uneasiness, or sense of weight in the side, so slight, indeed, as to be forgotten when the person is occupied. There is also uneasiness in the shoulder, which feels tired, as though from long exertion. These pains may be absent for several days, again returning after exposure to cold, or even without any probable cause. Sometimes sharp twitches are felt in the side, which the patient may state to be tender. But examination of the part does not confirm this, or, in fact, detect anything unnatural. The mind often dwells on this uneasiness, and the individual is in constant dread of some serious disease

appearing. There is also languor, want of resolution, and despondency. But the appetite and digestion are good, and the patient sleeps well.

These symptoms may recur for years, and may at first be regarded with suspicion, as indicative of insidious abscess. When, however, months elapse during which the individual enjoys good health, and probably gains flesh, the neuralgic character of the affection becomes, even to the patient himself, undoubted.

Treatment.—A mustard poultice will relieve the pain temporarily, and tonics, as quinine (Recipe 17), will probably prove beneficial. Medicines, however, are of little avail; occupation of the mind, and moderate exercise, are the best remedies.

[In some instances of this affection it may be desirable to apply a blister over the liver, when the pain is more than ordinarily complained of. For such cases, the solution of arsenic (Recipe 27), taken daily for some weeks, is the best tonic.]

LOSS OF VOICE.—This may be complete or partial. Its most frequent cause is inflammation of the 'larynx' or upper part of the windpipe; but hoarseness or partial loss of voice may occur from a simple sore throat. For the latter condition flannel round the throat, a mustard poultice, the feet in mustard and water at night, and an expectorant (Recipe 31) are sufficient. For the treatment of the former condition, *vide* INFLAMMATION OF THE LARYNX, p. 217.

Loss of voice may also arise from ulceration occurring during the progress of syphilitic disease, requiring treatment by anti-venereal remedies.

Hoarseness or loss of voice may also be caused by over-exertion of the organ, by singers or public speakers, or by clergymen, and is so common in the latter class as to be named *Clergyman's Sore Throat.*

CLERGYMAN'S SORE THROAT is rarely connected with any inflammatory action. But the throat may be red and congested, and feel sore, and the disorder, if allowed to continue, often becomes very intractable. It most frequently arises from too much straining of the voice, and is more often met with in young clergymen, who have not attained to the necessary experience in public speaking. They strain the voice by the injudicious employment of high notes, or by reading in a monotone before the organ has been inured to exertion by necessary practice. They commence speaking in a church when they should have commenced in a small room, and gradually accustomed the voice to fill a church. In other instances too long or too frequent speaking induces the malady. The only effectual remedy is rest, and then gradually bringing the voice into play; but a few days' rest is totally insufficient, some cases requiring weeks or months. When clergyman's throat is feared it is well for the throat to be 'hardened' from the first. While the beard is allowed to grow as a protection against sudden chills, the throat should be rather exposed to the air than wrapped up in woollen 'comforters.'. An alum gargle (Recipe 100) may always be used with advantage. Or port wine and water used as a gargle may be found beneficial.

[When in addition to huskiness or hoarseness of the voice the tonsils are red, swollen, and inflamed, a solution of nitrate of silver of the strength of eight grains to one ounce of water may be applied to the tonsils with a camel-hair brush twice daily. Tonics, as quinine and iron, may also be generally taken with advantage. A piece of borax of soda, about the size of a pea, allowed to melt in the mouth ten minutes before speaking, often affords temporary relief.]

ELONGATION OF THE UVULA.—Very frequently also there is elongation of the uvula, which is the appendage to the soft palate, and which may be seen hanging in the centre of the back of the mouth. Its office is to prevent fluids regurgitating by the nostrils during the act of swallowing. When the uvula is affected by cold, or by the irritation of public speaking, or sometimes participating in a deranged state of the stomach, it becomes relaxed and *elongated*, so as to extend down to the back of the tongue, or into the throat. This produces irritation, with tendency to cough when air is inhaled through the mouth in reading or speaking, and often also nausea or even vomiting.

Treatment.—Astringents carefully applied are generally sufficient to make the uvula contract to its natural size. Alum powder or nitre may be applied night and morning. If this does not succeed, ten grains of nitrate of silver dissolved in an ounce of water should be applied with a camel's hair brush or feather twice daily. Attention should also be paid to the state of the bowels.

These means failing, one-third of the length of the uvula should be cut off by a pair of sharp scissors, an operation which will be best performed by the surgeon.

LOCK JAW.—*Vide* TETANUS, and POISONING BY STRYCHNINE, pp. 313, 434.

LUMBAGO.—This term implies severe pain and tenderness of the muscles of the loins, aggravated by motion, often preventing the patient from walking, and frequently occurring suddenly. It is, in fact, a variety of rheumatism. It generally arises from cold. It is distinguished from disease of the kidneys, in which pain occurs in the loins (*vide* INFLAMMATION OF THE KIDNEYS, p. 216), by the absence of urinary irritation and of frequent desire to make water, and from there being no bloody matter or other deposit in the urine.

Treatment.—Broadly speaking, it may be said that internal remedies are of little use for lumbago. Local applications are the best remedies, and as a rule they do most good when applied hot. Mustard poultices may be applied; or the back may be well rubbed with hot 'grass oil.' Some powdered sulphur, wrapped up in a flannel belt, and worn habitually, is by many praised as a local remedy. When the pain is very distressing at night, Dover's powder or chloral may be taken.

[Turpentine and salad oil in equal parts; ammonia and oil in the proportion of one-third ammonia; iodine paint; chloroform and opium liniment (Recipes 89, 90), are all sometimes useful. In recent cases, before the lumbago has become confirmed, colchicum with alkalis (Recipe 51) should be taken. If the patient is feverish Recipe 72.]

LUNGS, INFLAMMATION OF THE.—This disease, technically known as *Pneumonia*, is ordinarily the result of cold. It frequently occurs during attacks of fever of almost any variety, and is more especially prevalent among natives in the colder weather of the Northern India districts, and at hill stations. The disease usually commences as a severe cold, with chills and flushes of heat. There is a short, dry cough, afterwards attended with a thin frothy expectoration, which at a later period becomes *rusty* coloured, or streaked with blood. This coloured character of the expectoration is, indeed, in adults, the great distinguishing characteristic between *bronchitis*, or inflammation of the tubes leading to the lungs, and the still more dangerous *pneumonia*, or inflammation of the substance of the lungs. There is no acute pain attending this disease, unless it is also, as sometimes happens, combined with *pleurisy* or inflammation of the covering of the lungs. But there is a deep-seated, dull aching in the chest, and the respiration is frequent and short, rising from fourteen or sixteen (the number of respirations in the recumbent posture during health) to forty or upwards; while the temperature of the body, as may be tested by the clinical thermometer, rises to 104° or 105° Fahr. In favourable cases the disease may decline on the fifth or sixth day, or it may be protracted to a fortnight. As a rule it may be stated, that if the mean of the bodily temperature, taken several times daily, is not above 104° Fahr.; if the pulse does not rise above 120 beats in the minute, and if the respiration does not rise above thirty-five in the same period, the patient, if otherwise healthy, will certainly begin to get well in eight or ten days. In unfavourable cases, on the fourth or fifth day, the breathing becomes more frequent and difficult, the pulse quicker, the skin hotter, and delirium, followed by complete stupor, ensues.

There are during the progress of this disease certain physical signs to be discovered by listening to the breathing. The parts most generally affected are the lower part of the lungs, and by listening below the shoulder-blades at the commencement of the disease, a peculiar creaking noise will be heard with the breathing, very similar to that produced by strongly rubbing the hair near the ears between the finger and thumb. This is caused by the passage of air through the sticky glutinous fluid secreted in the lungs. In the more advanced stages of the malady, the lungs, where chiefly affected, may become hardened, and therefore when the chest or lower part of the back beneath the blade-bones is tapped with the fingers, a more or less dull sound results, instead of the clear resonant sound of health.

Treatment.—The patient should remain in bed, and the atmosphere of the room should be maintained equable, free from draughts, and moist from the steam of boiling water. The great thing is to avoid variations of temperature and chills to the surface of the body. The patient should not be allowed to talk much, and movement, which often causes much distress by accelerating the breathing, should as much as possible be avoided. In the early stages of the malady, if the patient is young and strong, and if there is much pain, leeches, one for each year of the patient's age up to thirty in number, may be applied near the most painful spot. When the leech-bites have ceased to bleed, a large hot linseed-meal poultice, or spongio-piline mois twith hot water, should be applied to the chest; but care must be taken that the bleeding does not recommence on applying heat, as too much blood may in that way be drawn, and tend to exhaust the patient and make him faint. After the linseed poultice, which may be repeated daily, cotton wool should be applied. As medicine, ipecacuanha wine and paregoric (Recipe 31) should be given every three hours. The diet should be light and nutritious, as milk, light pudding, eggs, beef tea, broth, and jelly. For previously strong and healthy persons, stimulants will seldom be required, provided the case progresses favourably; but if signs of exhaustion occur, brandy should be given freely. In weakly people it will sometimes be desirable to treat the case altogether with stimulants from the first, omitting leeches, and adding fifteen minims of aromatic spirits of ammonia to each dose of the paregoric mixture. Similarly when inflammation of the lungs occurs in very old people a stimulating plan should be adopted.

[If the patient is strong, robust, and young, it will be more advisable, after the leeching, to give tartar emetic mixture (Recipe 33). The tartar emetic mixture, by its effect on the circulation, maintains the influence of the leeches, diminishes the force of the circulation, and also acts on the skin, promoting perspiration; and thus lessens the difficulty of breathing.]

INFLAMMATION OF THE LUNGS, OR PNEUMONIA, OCCURRING IN CHILDREN, is not uncommon, and demands special notice. The cause is generally cold, and when the disease is commencing, there is feverishness and a dull heavy expression, soon followed by hard dry cough, parched lips, flushed countenance, furred tongue, hot mouth and skin, high-coloured urine, and short, panting, oppressed breathing, the nostrils dilating with each inspiration. This condition in children is very likely to be mistaken for simple bronchitis, and the more grave nature of the case may not be understood. The following contrast, therefore, of the symptoms of pneumonia and bronchitis is added:—

Bronchitis; or, Inflammation of the Air Tubes leading to the Lungs.	*Pneumonia; or, Inflammation of the Lungs.*
Skin, warm and moist.	Skin, hot and dry.
Mouth, warm and moist.	Mouth, hot and dry.
Breathing hurried, with wheezing.	Breathing, short and panting, unaccompanied by wheezing, although a slight crackling sound may be heard.
Cough, loud and noisy.	Cough, hard, short, feeble.
Expectoration, if coughed out, white and glairy.	Expectoration, if coughed out, rusty and frothy.
Child, cross and fretful.	Child, dull and heavy.

Treatment.—When treating pneumonia in children, neither leeches nor tartar emetic should be used. If necessary, the bowels should be loosened by castor oil or senna tea, after which Recipe 31 should be given in doses according to age. Hot linseed-meal poultices should be frequently applied over the whole chest (*vide* remarks on such applications for BRONCHITIS, p. 76). If after two or three days the child is low and feeble, small quantities of wine and water may be allowed. All through the illness the patient should be encouraged to take broths, jelly, milk, or other digestible fluid food; for the disease is one rapidly producing exhaustion in children, which should be early guarded against. The atmosphere of the chamber should be maintained moist, and at an equable temperature, in India about 80° Fahr., if possible both day and night. But whatever the temperature may be, it should be *equable*, and the colder atmosphere of the night should be guarded against, a very slight fall of temperature being sufficient to aggravate the malady.

MEASLES.—This is a contagious eruptive fever, which usually attacks early in life, and seldom occurs more than once to the same person. The period between exposure to infection and the commencement of the symptoms is from ten to fourteen days. The malady commences with feverishness and cold in the head, or 'catarrh.' The eyes are red and watery, and there are fits of sneezing, with cough, and probably pains in the limbs. At the end of the third day, or beginning of the fourth day of the above symptoms, the rash begins to appear, first on the forehead, face, and neck, then on the trunk, and lastly on the arms and legs. The rash at first appears as small round red spots, resembling flea-bites. These extend and merge into each other, assuming semicircular or crescentic outlines of a crimson colour, and slightly raised above the surface of the skin. The fever and cough continue, but the latter becomes loose. Three or four days after its appearance the eruption begins to fade, first on the face, then on the limbs. In about two days it disappears with scurfiness of the skin. The fever does not diminish temporarily on the appearance of the rash, as is the case in small-pox, but continues until the fading of the rash commences, when it gradually subsides.

In some severe cases of measles there is accompanying bronchitis, or even inflammation of the lungs, when symptoms present as described under such heads. In other cases the cough continues after the eruption is gone, and often there is some delicacy of the chest, from which the patient is long in recovering.

The principal distinctions between the earlier stages of measles and of small-pox or scarlet fever, with both of which, at the commencement, measles may be confounded, are as follows:—Measles is known by the catarrhal affection, or appearance of a cold, with which it is ushered in, and by the crescentic peculiarity of form and crimson colour of the rash. In small-pox there are no catarrhal symptoms, and there are generally vomiting and pain across the loins before the rash comes out, which shows as raised red spots. Scarlet fever begins with a sore throat, and the vivid scarlet rash appears earlier. For further distinctions, *vide* SCARLET FEVER, p. 264; SMALL-POX, p. 284; and ROSEOLA, p. 272.

Treatment.—Measles as a rule is a mild disease, and the great majority of cases recover; but this should not lead to neglect of persons, and especially of children, suffering from the malady, for the affection is not free from danger. There is no drug by which the disease can be cured, and therefore attention must be principally directed to those means by which the patient may be most relieved, and by which the complication of chest affections may be avoided. In the first place the patient should be kept indoors—if a bad case, in bed—as this is the best method by which a more equable temperature may be maintained, draughts avoided, and tendency to bronchial affection or to inflammation of the lungs lessened. While great care is taken that the patient should not be exposed to draught and chill, the room should be airy and well ventilated. The room should also be darkened, as the eyes are sensitive and strong light is unpleasant. Dryness or tingling of the skin may be relieved by bathing with tepid water, taking care that only one portion of the body is exposed at one time. In the case of children it is generally advisable to give a hot bath at the onset of the disease, then dry the surface of the body and put the child to bed directly. If the necessary precautions are used no chill need be feared, and the hot bath will probably tend to bring out the rash. If the children are dirty this is the more needful, both for the sake of seeing the rash clearly and to enable the skin to perform its proper functions. At first no solid food will probably be cared for, but the patient is always thirsty and may drink milk and water, toast water, chicken broth, and lemonade or tamarind whey (*vide* p. 583). If the bowels are confined they should be acted upon by castor oil or senna, and citrate of magnesia may be given to diminish feverishness. In some cases it may be necessary to give an emetic of ipecacuanha wine, to assist the expulsion of the phlegm which accumulates in the air-passages. If the breathing becomes hurried, a mustard poultice or the mustard leaf, or for young children a linseed-meal poultice, should be applied to the chest. As a general rule stimulants are not desirable, but in cases where there is much exhaustion, a little port wine may be allowed. If cough continues after the rash is gone, it should be treated as ordinary bronchitis. Sometimes the eruption suddenly disappears; in this case there is great depression and distress. A warm bath will generally revive the eruption and afford relief.

It should be recollected that measles is a very contagious malady, and during the illness all offensive *excreta* or dirty linen should be immediately removed and disinfected (*vide* p. 575). Measles is most contagious when the rash is out, but it is not safe for other children to mix with affected patients until three weeks after the rash has disappeared, and then only if all clothing has been disinfected and washed. Isolation of a patient is the only way to prevent the disease spreading.

MISCARRIAGE.—*Vide* PREGNANCY, p. 255.

MOLES and MOTHER'S MARKS are discolorations of the skin, often found on some part of the body at birth. The term 'mother's mark' is often applied to a *nævus*, which is a collection of small blood-vessels raised above the surface of the skin. This may be of various sizes from that of a pin's head to the circumference of a crown piece, or larger. When the child cries, the colour of these patches becomes deeper. Although not painful, they may grow to a large size, and eventually be the source of periodical bleeding. Therefore surgical advice should always be sought. Very generally a slight surgical operation is required.

MORNING SICKNESS.—*Vide* PREGNANCY, p. 250.

MORTIFICATION or GANGRENE.—This term signifies the death of any part of the body, from disease or injury. Mortification of various parts, as the foot, for instance, may occur from old age, from debility, from poverty, starvation, disease of the arteries of the part, or from injury to the nerves or arteries. When a part of the body mortifies it becomes black and dead, and emits an offensive odour. As a general rule surgical advice will be decidedly required. If this cannot be obtained poultices are the best applications.

MUMPS.—This is an infectious disorder, consisting of inflammation of a gland called the 'parotid gland,' situated behind the jaw below the ear. It generally occurs in children, but sometimes in adults. It commences with a slight feverish attack. After a few hours, or perhaps in a day or two, a swelling, often of almost stony hardness, is noticed before and under the ear, extending along the neck towards the chin. This lump is exceedingly painful, and continues swollen for four or five days, while the skin is often very red. It then gradually disappears, leaving no trace. The swelling of mumps seldom gathers. It may affect one or both sides of the face. It seldom occurs more than once in life. It is contagious, and sometimes runs through a whole family or school. Mumps is not a dangerous malady, but in severe cases swallowing is difficult from the pressure of the swelling on the throat, and but little food can be taken. Occasionally during the course of the disease, but generally at its subsidence, a similar swelling may affect the breasts or the testicles. Still more rarely the inflammation may pass from the parotid gland to the brain.

Treatment.—If mumps is very severe, causing difficulty of swallowing, or of breathing, leeches to the part may be required; but usually constant hot fomentations will be sufficient. Cold applications should not be used, as the disease is under such influence more apt to attack other parts. Flannel wrung out of hot poppy-head decoction is the best application. The poppy decoction may be made by boiling half a dozen bruised poppy-heads, together with the contained seeds, for half an hour, in as many pints of water, and then straining the fluid clear. During the interval of fomentation the parts should be wrapped in flannel. The patient should be debarred for a few days from meat, and aperient medicines, as senna or castor oil, should be given. Citrate of magnesia, in doses according to age, should be used as a cooling mixture, and absolute rest and quiet should be enjoined. If the inflammation migrates to the breast, or to the testicle, or to the brain, the treatment proper for inflammation of those parts should be employed. (*Vide* pp. 67, 187.)

MUSCÆ VOLITANTES.—*Vide* SPOTS BEFORE THE EYES, DISEASES OF THE EYE, p. 150.

NAILS, DISEASES OF THE.—Sores in the neighbourhood of the toe-nails are often very troublesome, especially when accompanied by what is popularly termed 'ragnail,' or 'the growth of the nail into the flesh.' It does not, however, arise from any alteration in the nail, but from the soft parts being pushed up against the edge of the nail, by tight or ill-fitting boots. If this continues, an ulcer is formed at the root of the nail, which sometimes is so painful as to prevent walking.

Treatment.—The objects are to remove the irritation caused by the nail, and to reduce the swelling. In many cases, after soaking and softening the nail in hot water, it may be filed or scraped so thin that the soft parts are no longer irritated. Or by filing the nail thin in the middle the offending edge may be caused to rise into its situation. But if the edge of the nail still presses into the parts, the corner must be cut away with a sharp pair of scissors, which is a very painful operation. Local applications should consist of fomentations and poulticing. Persons disposed to this affection should wear their shoes loose, square at the tips, and keep their nails scraped rather thin, so that they may be more flexible.

An unhealthy ulceration, technically termed '*Onychia*,' sometimes forms about the finger-nails, particularly of unhealthy children. It commences as a deep red swelling, in which matter forms, succeeded by an ulcerated condition.

Poulticing, and letting the matter out by means of a lancet, are the remedies. Laxatives and tonics will also be required.

NÆVUS.—*Vide* MOLES, p. 236.

NERVOUSNESS.—There is an irritable state of the nervous system, most common in women, but occurring in men, and characterised by causeless irritability, flushing from slight emotion, tremblings, sudden attacks of faintness, or palpitation, a variable and excitable temper, fits of low spirits, a tendency to weeping. Excessive study, anxiety, or exhausting diseases, as piles or hæmorrhoids, may cause it in those previously robust. When aggravated it constitutes *hypochondriasis* (*vide* p. 210) in men, and *hysteria* (*vide* p. 211) in women. It requires attention to the general health, and tonics, as wine, quinine, iron, and ammonia.

NETTLE RASH.—*Vide* SKIN DISEASES, p. 273.

NEURALGIA.—The term is applied to nervous pain, which may occur in any part of the body, but which most generally presents somewhere in the face, when it is called *tic-douloureux*. If in the forehead on one side it is called *brow ague* (*vide* p. 199). The next more usual places are the teeth, the head, and the left side in women. The pain of neuralgia is often very severe, coming on in paroxysms. It may be caused from the irritation of decayed teeth, or it may result from errors in diet, and indigestion. It is also often connected with some irregularity of the 'monthly flow' in women. Lastly, neuralgia is often caused by malaria. The treatment of neuralgia, therefore, requires, in the first instance, inquiry into the probable cause. If carious teeth are the excitants, they should be removed, or stopped. If the pain follows indigestion, a purgative at the time, and greater care in diet, are required. If connected with the monthly flow the case should be treated specially with reference to this cause (*vide* WOMB DISEASES, p. 329). If malaria appears to be the excitant, which may be suspected when the malady recurs regularly and periodically, quinine and iron should be given. Pain may be relieved by hot fomentations, mustard plasters, or by the application of lint wetted with chloroform to the part. The lint may be covered with a watch glass to prevent evaporation of the chloroform. When the pain is long-continued and severe, chlorodyne, or chloral, may also be administered.

[For neuralgic pains, especially of the forehead, Recipes 90 and 91 should be procured and used alternately.]

NIPPLES, SORE.—*Vide* DISEASES OF BREAST, p. 69.

OPHTHALMIA.—*Vide* DISEASES OF THE EYE, p. 144.

PARALYSIS or PALSY signifies loss of power of motion of a limb or of one half of the body. Sometimes sensation or the power of feeling is also lost, but this more rarely. Paralysis, of one kind or other, very often follows an attack of apoplexy (*vide* APOPLEXY, p. 43). The person cannot move the affected limb, and in more serious cases the tongue and face are drawn to one side, and the tongue cannot be put out straight.

Paralysis sometimes occurs without any prior apoplectic seizure, and is due to some mischief in the brain.

Another kind of palsy may be caused either by disease or injury of the lower part of the spine, in which case motion and sometimes sensation of both legs are lost, and the fæces and urine pass involuntarily. Paralysis of any kind is rarely cured, the most that can be done being attention to the general health and friction of the limbs to preserve their warmth and assist the circulation.

PARALYSIS, HYSTERICAL, has already been referred to in the para. on HYSTERIA. It generally assumes the form of *paraplegia*—that is, paralysis of the legs. It is known from real paralysis by presenting in hysterical patients, generally young girls, and although often not much benefited by treatment of a medicinal nature, generally gets well spontaneously or under the influence of hygienic measures.

PALSY, SCRIVENER'S, or WRITER'S CRAMP and TELEGRAPHIST'S CRAMP, is a peculiar kind of local spasm, or, in bad cases, of local palsy. In the spasmodic variety, every attempt to write instantly calls forth uncontrollable movements of the fingers or wrist, so that the pen starts up and down, and instead of legible writing a mere scrawl results. In other instances the pen cannot be held, and the wrist is almost powerless. There is generally a tired feeling in the latter part, and particularly in the ball of the thumb and in the little finger. Occasionally the arm is painful to the elbow. The causes are too much writing, aided often by an irritable constitution. The only means of relief is perfect rest to the part, and strengthening the system by tonics, fresh air, and exercise. As prevention is better than cure, the first warnings of this malady, *viz.*, a tired feeling in the thumb or little finger after writing, should be accepted as a hint that the occupation is injurious, and that the parts are being used too much. When fully developed, writer's palsy is often very intractable and liable to return.

Among telegraph clerks the same kind of cramp occurs as in writers and others who have to execute the same motion with the fingers uninterruptedly for a long time. In Morse's system the letters are represented by dots and lines, and the disease first shows itself by a difficulty in forming the letter *s*, which consists of three dots; *i*, which consists of two dots; and *v*, which is made up of two dots and a line. By degrees every combination of dots and lines becomes difficult in the ordinary position of the hand, and the patient generally attempts to work with his thumb only, next with the forefinger and the middle finger together, and lastly with the whole hand, until he is obliged to desist altogether, owing to attacks of cramp in the whole forearm. He may also suffer from giddiness and sleeplessness. The best means of avoiding it is to use the different fingers alternately from time to time, and as soon as the least sign of cramp is noticed to use some other kind of instrument, or give up work for a time.

PARAPHYMOSIS.—This term is applied to a condition of the private parts often occurring in male children. It consists in the foreskin being drawn back from the end of the penis, where it remains and cannot be returned. The result is swelling and redness of the parts, attended with considerable pain and sometimes by difficulty in making water. The parts should be returned to their natural positions as soon as possible. The 'glans' or head of the penis should be compressed with the fingers and thumb of one hand, so as to squeeze the blood out of it; at the same time it should be pressed backwards while the foreskin is drawn forwards. If this does not succeed after several trials, a slight cut with a knife will probably be necessary, for which the child should be taken to a surgeon.

PHYMOSIS signifies the opposite condition to the above, and consists in an unnatural *constriction* of the orifice of the foreskin. This may be the result of sores or ulcers, or it may be congenital. The case generally requires surgical interference.

PRIVATE PARTS, FEMALE, OCCLUSION OF THE.—A peculiar affection of the private parts sometimes occurring to female children, may give rise to much uneasiness. This consists in the apparent formation of a skin at the orifice, uniting the two sides, which seem thus grown together. It depends on the collection of the natural discharge near the orifice, and although of some strength and thickness, it is not a new growth. It always occurs to children who are not kept properly clean. The remedy consists in breaking the obstruction down with a probe, in applying a little salad oil to the parts if they appear red and sore, and in perfect cleanliness.

PILES.—Piles, or hæmorrhoids, consist partly of enlarged blood-vessels, partly of thickened mucous membrane, partly of skin, and appear close to the end of the lower bowel or *rectum*, either inside or outside the orifice. There may be one, or there may be a larger cluster of such formations in the shape of small tumours. At first they appear for a time, and then, becoming smaller, cease to give trouble probably for many months. Then reappearing they cause much heat and pain about the fundament, bleeding perhaps occasionally, or in some cases daily. When a person is subject to piles the malady at length becomes permanent, and the piles, if not always bleeding or inflamed, cause a continued sensation of weight and discomfort behind, and pain in the loins, which constantly annoys the patient. They also become periodically inflamed, causing pain and straining at stool, often with irritation of the bladder or symptoms of dysentery. In women especially piles cause aching of the back, uterine irritation with mucous discharges, and many other anomalous symptoms, which will be treated in vain until the real cause is understood. Such anomalous symptoms are debility, palpitation, the conditions mentioned under the head NERVOUSNESS, and dysenteric stools. Piles are very common in India, as a consequence of the heat of the climate, and the tendency to liver disease; and the periodical loss of blood caused by piles, and the consequent weakness thus induced, are frequently the indirect source of other ailments. Thus a person so affected will be the more liable from his debilitated condition to attacks of malarious diseases. On the other hand, the loss of blood caused by piles, if not excessive, appears to have, to some degree, in stout and robust persons a salutary effect, by relieving the liver of threatened congestion, the result of plethora, or fulness of the system. In time, however, the loss of blood being continually repeated, perhaps even daily, the debilitating effect far counterbalances any healthy tendency, so that piles should never be neglected, under the idea popularly held, that by the discharge of blood, some deleterious matter is expelled from the system.

The causes of piles are numerous. Constipation and the consequent straining at stool tends to produce them. Sedentary pursuits, and too long sitting on soft seats, have a tendency to excite them. Too much horse exercise or camel riding, riding in a jolting vehicle, the immoderate use of strong purgatives, especially aloes, are all exciting causes. Warm, moist, and miasmatous climates, by inducing relaxation generally, and of the veins in particular, are also predisposing causes. Congestion of the liver is a fertile source of piles; also the frequent occurrence of diarrhœa or dysentery.

Treatment.—The treatment of piles must be divided into that proper during the painful or inflammatory stage, and that necessary when the parts are quiescent. When *external* piles are inflamed, fomentations or poultices should be applied, and the bowels should be well opened by castor oil or by sulphate of soda (Recipe 2), which produces watery stools. But after the bowels have once been well cleared, purgatives should not be given. The patient should be kept at rest in bed, and if feverish citrate of magnesia (p. 13) should be administered. After the sore or inflammatory condition has passed away the parts should be bathed frequently with cold water, or cold alum water, while tolerably active exercise must be taken, and the bowels prevented becoming costive by laxative medicines, or perhaps by brown bread.

In the treatment of inflamed *internal* piles, or those not protruding outside the verge, the bowels should be once thoroughly moved by castor oil, after which, as poultices or fomentations cannot be applied to the part, injections of warm water may be used. The patient should be kept perfectly quiet in bed, and if feverish should take citrate of magnesia draughts (*vide* p. 13). When piles are inflamed, whether internal or external, the diet should consist chiefly of broths, toast, eggs, or milk, and no stimulants should be allowed.

When internal piles protrude after the use of the close stool, they should always be sponged with cold water, or with alum water (Recipe 100), before being returned. When they do not return, or cannot be replaced as usual, the person should lie down for a time, when perhaps the protruded substance will be drawn back by the action of the bowels. If not, they must be returned with gentle pressure, otherwise they may become constricted and inflamed by the pressure of the verge of the anus. It is a good rule for persons subject to internal piles, to acquire the habit of visiting the closet at night, instead of the morning, that the piles, if protruding, may be returned when the recumbent posture is about to be assumed, rather than previous to the active business of the day.

Black pepper, cubebs, pitch, sulphur, and a host of other medicines, have been from time to time lauded as beneficial in piles. Similarly, zinc, alum, oak bark, and lead lotions have been recommended as useful local applications. But the cure of almost any kind of piles consists more in hygienic measures, and in attention to diet, than in medicines. The patient should restrict himself to a carefully regulated and temperate diet, abstaining from highly seasoned dishes, pastry, and spirits.

Change of climate to Europe will often relieve piles when other means fail. But frequently a surgical operation is required.

[Of local applications for piles, the best is probably the compound gal. ointment (Recipe 95), which should be procured by those subject to the malady.]

PLEURISY.—Pleurisy is inflammation of the serous membrane covering the *outside* of the lungs, and the *inside* of the chest, and separating one from the other. At the commencement of acute pleurisy there is generally shivering followed by fever, and by sense of weight in the chest. This in a few hours becomes acute *stabbing* pain, and is most felt in the side about the level of the nipple, shooting to the front of the chest, to the collar bone, or to the armpit. There is short dry cough, the breathing is short and 'catching,' and the pain is increased by coughing, by taking a long breath, or by lying on the affected side. The pulse is frequent and hard, feeling under the finger like a tense vibrating string. The tongue is furred white, the urine scanty and high-coloured, and the skin hot.

Pleurisy may be caused by cold, or by external injuries, as fracture of the ribs, and often arises during the progress of intermittent or remittent fevers. If not checked the result is the effusion of a watery fluid in the membrane, placed between the lungs and the inside of the chest, forming one variety of dropsy of the chest. In favourable cases the acute pain and fever subside about the fourth or fifth day; but if there be any fluid effused, the cough and difficulty of breathing may persist for an indefinite period.

Pleurisy may be distinguished from *inflammation of the substance of the lungs*, by *first*, the character of the pain, which is *stabbing* or *lancinating* in pleurisy, but dull and aching in inflammation; *secondly*, by the cough, which is hard, dry, and short in pleurisy, and unattended with expectoration. In inflammation of the lungs the cough is more prolonged, and the expectoration is frothy and 'rusty,' or brown-coloured from admixture with blood.

Treatment.—The patient should be kept in bed, warm and free from draughts. He should move as little as possible, as motion accelerates the breathing and increases the pain. The diet should be light and nourishing, as eggs, beef tea, broth, jelly, and fish. If the pain is *very severe*, and the patient a *strong, robust* person, bleeding from the arm may be required, after which the pain is much relieved, and a long breath may be taken with more ease. If pleurisy occurs in a weaker person leeches may be applied over the painful part, one for each year of the patient's age, up to thirty in number. As medicines, Dover's powder and ipecacuanha (Recipe 39), may be given every four hours. Restlessness at night is very common, and this may be relieved by chloral. During convalescence care against cold and chill is urgently necessary, and if there is any remaining cough, an expectorant mixture, as Recipe 31, should be used.

[In bad cases of pleurisy occurring in young robust persons, it will be generally advisable to give calomel and opium (Recipe 43) as soon as possible, and the medicine should be continued until there is a metallic taste in the mouth or slight soreness of the gums. Also, if there is much feverishness, tartar emetic mixture (Recipe 33). The tartar emetic, by its effect on the circulation, maintains the influence of the bleeding or leeches, and the calomel, affecting the system, puts a stop to the inflammatory tendency. When pain is relieved or ceases, this medicine must be discontinued. If the mixture produces sickness, the quantity given as a dose should be lessened.]

CHRONIC PLEURISY.—Chronic pleurisy is generally a consequence of the acute form, but occasionally it commences as a sub-acute disease. In either case *hectic fever*, or feverishness at night, a permanently quickened pulse, emaciation, difficulty of breathing increased on exertion, and inability to lie on the healthy side are the principal symptoms. These symptoms may be more or les severe according as the pleurisy is of greater or smaller extent. And such a condition is apt to alternate with symptoms of the more acute form, such as more severe pain, and increase of fever with hardness of the pulse.

Treatment.—The treatment of the chronic form of this disease consists in supporting the patient's strength and in promoting the absorption of any effused fluid. The *first* indication should be fulfilled by liberal diet and by tonics as Recipe 17; the second by the frequent application of some counter-irritant, which, in the absence of the remedy mentioned in the small type below, may be mustard poultices, to the painful part.

Chronic pleurisy may exist for months or years, the person so affected sometimes feeling little of the ailment, at others suffering from repeated sub-acute attacks. But in such patients the breathing is generally difficult, particularly after exertion, and there is tendency to night fever and night sweats. One of the chief means by which increase of the disease may be guarded against is care to avoid catching cold, for any slight cold in such persons is very liable to attack the chest as the weakest part, and to result in an accession of the more acute form of the malady. Paroxysms of intermittent fever or ague must also be guarded against by the use of quinine, for when such fever occurs it is very liable to induce an increase of the pleuritic affection.

[The best local application for chronic pleurisy is iodine paint, which should be applied to the side by means of a feather or brush every day, or less frequently after the first two or three days, so as to maintain an irritation of, but not to blister, the skin. Iodide of potassium (Recipe 45) should also be administered internally. These measures, particularly the iodine paint, should be had recourse to immediately on every fresh attack.]

The ultimate results of either acute or chronic pleurisy may be accumulation of *water* in the cavity of the *pleura* or membrane between the lungs and walls of the chest, which condition is called *Hydrothorax*, or accumulation of pus in the same position, called *Empyema*. These conditions may be suspected when, after pleurisy, night fever and pain remain, when the person grows emaciated, and when one side of the chest appears bulging and more prominent than the other. Such conditions require careful diagnosis and treatment by an experienced surgeon, and are often fatal.

PREGNANCY, DISEASES OF.—The pregnant condition in women lasts forty weeks, and may be in ordinary cases thus calculated. Supposing the monthly flow to have last appeared on the 28th of December, continuing four days, reckon forty weeks from the day after its ceasing, or from the 1st of January. This will be the 8th of October, within a day or two of which date the woman will be confined. During all this period the general condition of the pregnant woman is one of fulness or plethora, the pulse is quicker and stronger, and there is a general excitation of the system. Well-marked sympathies are also excited in various organs, often amounting to distressing irritation, and which are also evidenced by variations in temper and disposition and by caprices in taste. The most usual complaints during this period are—1. *Peculiar indigestion.* 2. *Fainting feelings.* 3. *Morning sickness.* 4. *Toothache and salivation.* 5. *Swelling of the legs and varicose veins.* 6. *Irritation of the breasts.* 7. *Piles.* 8. *Irritation of the bladder and private parts.* 9. *Miscarriage.*

1. INDIGESTION DURING PREGNANCY is very common. It is generally marked by constipation, by heartburn, and by flatulence. The urine is also altered in various ways, often forming a filmy deposit on the surface when allowed to stand. The countenance occasionally becomes sallow, and there are sometimes eruptions on the face. The treatment consists in maintaining the bowels moderately loose by castor oil, by senna, or by Recipes 1 and 2; in the use of remedies mentioned under the head FLATULENCE, and in care and attention to diet, which should be nourishing but easily digestible.

2. FAINTING FEELINGS.—These feelings are more common about the period of 'quickening,' or between the end of the twelfth and the sixteenth week of pregnancy. Fainting feelings, or palpitations, often accompany the first movements of the child, and will be the more persistent and severe, if indigestion, as described above, prevails, or if the person exposes herself to the ordinary causes of fainting, as hot rooms, fatigue, or excitement. A stimulant, as sal volatile

or wine, and the recumbent posture, are the treatment required. All tight articles of dress should be avoided.

3. MORNING SICKNESS.—This generally sets in about the sixth week, ceasing after the third month. But it may commence much earlier, and it may continue to the termination of the pregnancy. Most women suffer more or less from nausea, and vomiting, especially on rising in the morning, but with some women it continues more or less during the entire day, and may be extraordinarily violent. A minor degree of nausea during child-bearing is popularly supposed to be a good sign rather than otherwise, and if only present to a slight degree in the morning, no particular treatment will be required. In other cases great attention must be paid to diet, one article after another being abstained from, in order to discover any offending material. For it sometimes happens, that substances taken by women with perfect impunity at other times, cannot be eaten during the time of pregnancy. Rich, indigestible food, as pastry, made dishes, and salt meat, should be avoided.

The bowels also must be kept open by castor oil, so as to avoid constipation. And a little tea and toast should be taken in the morning, before the erect posture is assumed. If acidity of the stomach is present, the medicines mentioned under such head should be employed. Effervescing draughts of citrate of magnesia (*vide* p. 13) with two or three drops of chloroform, or sal volatile in a little water, may also be employed. Quinine, with an aperient, if the bowels are confined, as Recipe 17, with the addition of six drachms of sulphate of soda, may be tried. Champagne and soda water sometimes afford relief. The inhalation of the steam from hot water in which a little laudanum has been mixed in the proportion of one ounce of the latter to two quarts of the former may be advisable. Some women find it a good plan to drink a glass of warm water, and so encourage the sickness for a few minutes, which then passes off, leaving them free for the day. When vomiting or nausea are very distressing, continuing all day, nourishment in the shape of good soup and brandy should be administered, at intervals of half an hour, but not more than two or three spoonfuls at once. Sucking ice is also often useful, and a mustard poultice to the pit of the stomach should not be neglected. The wet compress may also be tried. This is made by placing several folds of wet linen over the stomach, covering with oiled silk and then applying a bandage from eight to ten inches wide. This should be drawn moderately tight, and the compress worn for two or three hours every morning.

[Other remedies are magnesia in peppermint water, as Recipe 35; also Recipes 41, 42, 47, 55, and 56, any of which sometimes suit one person but not another, nor even the same person at different times.]

4. TOOTH ACHE AND SALIVATION.—Tooth ache is a very frequent attendant of the pregnant state. The pain is sometimes confined to a decayed tooth; occasionally it attacks a sound one. The first, if far gone, may be extracted, although this is not always advisable, as the shock has been in nervous women followed by miscarriage; but a sound tooth should never be taken out. The ordinary local applications, as tincture of opium and chloroform, may be used, as mentioned in the para. on TOOTH ACHE, p. 315. But perhaps more benefit will be derived from attention to the general health as regards the state of the bowels, of the digestion, and of manner of life in matters of regimen and early hours. Washing the mouth out with a teaspoonful of salt in a tumbler of water is often beneficial.

Salivation or the profuse secretion of saliva is less common than tooth ache, but sometimes occurs either in connection with the latter ailment, or alone. Astringent gargles may be used, as alum (Recipe 100), or a piece of alum may be sucked occasionally. Attention must also be paid to the general health, and constipation of the bowels must be avoided.

5. Swelling of the Legs and Varicose Veins.—Swelling of the legs occurs during the latter months of pregnancy. This condition, and *varicose* or enlarged veins, are due to the pressure exercised by the distended womb on the blood-vessels passing from the body to the lower extremities. When the legs are only swelled, they 'pit,' or show an indentation when pressed with the fingers, and are larger in circumference than natural. The swelling is much less in the mornings, sometimes totally disappearing after lying down, but soon returning on the erect posture being re-assumed. When the veins become *varicose* they may be seen prominent, dark, and ramifying in different directions under the skin of the leg. Often they appear at the point of bursting, and sometimes they actually do give way, the result being a copious flow of blood, which may continue until the person faints or until it is stopped by pressure. For swelling of the legs and enlarged veins occurring during pregnancy no kind of medicine is of much avail; the malady is caused by pressure from the enlarged womb, and until that is removed by the birth of the child the results must continue. But the condition may be very much lessened by frequently lying down, by keeping the legs up on a stool when sitting, and by applying bandages, or wearing an elastic stocking made for the purpose of preventing the veins becoming too distended. If a vein should burst, pressure with the fingers, or with a pad of lint soaked in cold water, should be applied till the bleeding stops. For *cramps* and pains in the legs often attending the swelling, gentle rubbing with brandy and salad oil mixed in equal proportions, or with soap and opium liniment if available, is an appropriate remedy. A bandage or garter tied tightly round the leg above the seat of pain will often relieve cramp, but the bandage should not be permitted to remain on for longer than four or five minutes.

6. Irritation of the Breasts.—About two months after

conception the attention of the woman is probably attracted to the state of the breasts. There is an uneasy sensation of fulness, with throbbing and tingling pain; or perhaps pain below the breast on the left side. The breasts increase in size, feel knotted, and there is a dark circle round the nipple. There is also sometimes a milky or watery secretion from the nipple. When these symptoms are prominent they cause considerable annoyance, but they may generally be relieved by keeping the bowels open, and by bathing the breasts with warm water. During the latter month of pregnancy the nipples should be bathed twice daily, with equal parts of brandy and water, or with alum water, or with infusion of green tea, or infusion of pomegranate bark, and the nipples should be (especially before the first confinement) pulled out and elongated with the fingers. Any flannel covering worn over the nipples should also be laid aside. These measures prevent 'cracking' during suckling, and render the nipple longer, and therefore more easily accessible to the child's mouth. The pain below the breast mentioned above often depends on constipation, and may be relieved by aperients.

7. PILES.—Piles, both internal and external, are very common during pregnancy; they are caused by the pressure of the distended womb, and therefore no medicines will be found of much benefit. After confinement they generally disappear. Avoiding standing about, and lying down frequently, washing the parts with cold water and applying gall ointment (Recipe 95, which must be procured from a chemist), is the proper treatment. For piles occurring during pregnancy surgical operation is not advisable.

8. IRRITATION OF THE BLADDER AND PRIVATE PARTS.—These conditions also depend on the pressure exerted by the distended womb. *Irritation of the bladder* manifests itself in frequent desire to make water, or in inability to retain the water, which frequently passes even against the will of the

patient. Some relief may be obtained by drinking freely of barley water, linseed tea, or lime water and milk, by relieving constipated bowels by aperients, and by maintaining the recumbent posture for several hours during the day, lying on either side instead of the back. But in many instances nothing will relieve this condition, which persists until the womb rises sufficiently high, so that the pressure from its bulk on the bladder is removed. Occasionally not only irritation of the bladder, but even retention of urine, or inability to make water, is caused by women in the early months of pregnancy neglecting to pass water until the bladder becomes too much distended, so that its muscle loses the power of contracting to expel the contents. The neck of the bladder is meanwhile compressed by the enlargèd womb, the womb itself being pushed backwards and sometimes displaced, the lower bowel or rectum being also compressed; a complication producing much suffering. Females travelling by rail, or in other positions where they are unable to obey the calls of nature, are often exposed to this accident. When retention of urine thus occurs, the person should as soon as possible take a warm bath. If this does not produce the desired effect, she should go to bed, take ten grains of Dover's powder, and be covered with blankets to produce perspiration, and so relieve the bladder until either urine passes naturally or a doctor can give relief by passing a catheter. Drinking, meanwhile, should be abstained from, and no medicines, as spirits of nitre or gin, calculated to increase the secretion of urine, should be taken, for by such means the distension of the bladder would be increased, while its power of expulsion would not be renewed. The bladder, when once paralysed in this way, does not recover its tone immediately, and therefore may require to be again relieved by the warm bath or the instrument. When cases of the kind are neglected, and the bladder is distended to its greatest limit, the water may begin to flow off by drops *without the will or even knowledge* *of the patient.* Nurses and attendants are often deceived by this appearance, and fancy that the water having commenced to come will soon flow naturally. But the reverse is the fact, and when this occurs the case demands constant surgical aid.

Displacement of the womb is a frequent consequence of the foregoing malady. If pain continues after the bladder has been emptied, displacement of the womb may be suspected; and this accident will frequently require the aid of a skilful surgeon.

Irritation of the private parts may result in the discharge termed *leucorrhœa* or 'whites,' or the irritation may take the form of intense itching, with or without an eruption of minute watery vesicles. When 'whites' are present the bowels should be regulated by castor oil, or citrate of magnesia, and the patient should lie down during a good part of the day. She should live on plain, wholesome, nourishing food, with a moderate amount of beer or wine. The best local application is bathing the parts with cold water, or with equal parts of sal volatile and water. If the water cannot at first be borne cold, it may be used tepid, gradually being used colder. Among the best internal applications is alum water (Recipe 100), which should be injected daily by means of a female syringe, the person lying down with the hips elevated on a pillow when the injection is used, and maintaining that position for a few minutes afterwards. When a person has been much weakened by 'whites' benefit will be derived from quinine.

For intense itching, bathing with cold or iced water is also the best remedy. If the itching is accompanied by the eruption of watery vesicles mentioned above, alum water should be used. Sometimes much relief may be obtained by bathing with water in which a few bruised poppy heads have been steeped.

9. **Miscarriage.**—Miscarriage occurs some time before the sixth month of pregnancy. If the child is born after

that time it is called *premature delivery.* But the most usual period of miscarriage is about the third month, and it is more likely to happen about the time corresponding with what would have been the natural monthly period had not pregnancy occurred. It is always an untoward event, and often exerts an unfavourable influence on the health of the female. When it has once occurred it is very likely to happen again on future pregnancy. It is common enough with Native women, but much more so with European females in this country. The causes are various; often depending on debility, and often brought on by imprudence in horse exercise, dancing, or from excitement, from passion or fright. It also frequently results from blows, falls, or concussions, such as missing a step coming downstairs, bumps in a carriage, jolting in a palankeen, &c. In other instances it is due to local weakness or disease of the womb. There is in some women an inherent weakness of constitution, which prevents pregnancy passing on to the full time. Attacks of malarious fever, so common in India, add to this weakness, rendering miscarriage in such persons an ordinary sequence of conception.

Symptoms.—When threatened with a miscarriage the patient experiences a sense of uneasiness, languor, and weariness, with aching pain in the back, loins, and hips, and there is often a slightly bloody discharge. After these symptoms have lasted a variable time, there are pains very like those of labour, often vomiting, and sometimes profuse bleeding, the blood passed being of a vivid red colour. This may continue for several days, the pain and bleeding recurring at intervals; or the miscarriage may commence suddenly, and the whole be over in a few hours. The *ovum* or *fœtus* is expelled in the shape of a reddish-white ball, the size of a pigeon's egg, at three months, and larger in proportion afterwards. After the *ovum* or *fœtus* has passed away, the pain and bleeding cease. In a case of miscarriage the danger and after injury are in proportion to the amount of pain and of attending *hæmorrhage* or bleeding.

Treatment.—In a case of miscarriage the first question is, Can the abortion be prevented? If the bleeding is slight and the pain trifling, this may sometimes be accomplished by *perfect* quiet and rest on a hard bed in a cool room, aided by a dose of thirty drops of chlorodyne in one ounce of water, followed by alum mixture (Recipe 58). But if increased pain and bleeding occur, the miscarriage will certainly take place, when the danger to be guarded against is profuse loss of blood. The alum mixture should be continued, the patient should not be allowed to move from the bed, and cloths saturated with cold water should be applied to the external outlet. As before mentioned, the bleeding ceases directly the abortion passes, but it is sometimes necessary to remove the mass with the fingers.

The after treatment of patients who have miscarried requires as much care as after a confinement. The patient should rest in bed seven or eight days, and then return gradually to her employments, while the diet should be simple, and the bowels be maintained moderately open. Getting about too soon after a miscarriage is not unfrequently the origin of some malady of the womb, especially of displacement or falling of that organ, from which the woman may long suffer.

[A better medicine than the alum mixture mentioned above is Recipe 59, which, if possible, should be procured and used.]

PRICKLY HEAT, or LICHEN.—*Vide* SKIN DISEASES, p. 277.

PROSTATE GLAND, ENLARGEMENT OF THE.—The prostate gland surrounds the urethra at the neck of the bladder, and is liable to several diseases, the principal of which is slow enlargement. This affection is more common after middle age than before, and is characterised by increasing slowness and difficulty in making water, a sense of weight in the fork, and straining, so that the patient often imagines he has piles. Next the bladder becomes irritable, and there are frequent calls to make water. But the enlarged gland prevents the bladder being perfectly emptied, and the urine remaining decomposes and becomes ammoniacal, setting up chronic inflammation of the bladder (*vide* p. 55).

Then the urine is loaded with sticky tenacious mucus, or purulent matter, which adheres to the bottom of the utensil, and is frequently tinged with blood. There may also be fits of complete retention of urine (*vide* p. 442). Finally the kidneys become affected, and the patient's strength is exhausted.

The early symptoms of enlargement of the prostate are sometimes very like those arising from other causes, as *stone in the bladder* (p. 56) and *stricture* (p. 295), so that physical examination is sometimes necessary to decide the point.

Treatment.—This disease is seldom, if ever, cured, although much may be done to retard the progress of the malady. The patient must avoid irregular diet, fatigue, and exposure to cold. The bowels should be kept open, so that there may be no straining at stool, and the medicines mentioned for chronic cystitis (Recipes 48, 49, 69), should be obtained and tried in succession, one or more of which will probably prove very serviceable. Enemas of warm water will also prove beneficial for the relief of occasional fits of spasmodic pain. The passage of a peculiarly shaped catheter will be also necessary, so that the malady is one requiring the daily attention of a surgeon.

PRURIGO, or ITCHING.—*Vide* SKIN DISEASES, p. 278.

PSORIASIS, or DRY TETTER.—*Vide* SKIN DISEASES, p. 283.

QUINSY.—*Vide* INFLAMMATION OF THE THROAT, p. 319.

RHEUMATISM, ACUTE.—In no disease is the distinction implied in the terms *acute* and *chronic* more manifest than in rheumatism; for although the disease occurs with every degree of severity and of every shade of character between the two extremes, yet in most cases the character is very clearly marked. *Acute* rheumatism implies the presence of fever; *chronic* rheumatism its absence. The latter is a frequent sequel of the former; it will now be understood why *acute* rheumatism is often called *rheumatic fever.*

Acute rheumatism is more common in young than in old persons; it commences with fever, a full quick pulse, hot skin, coated tongue, and scanty urine, which deposits a dusky reddish sediment. The pain generally comes on in one of the larger joints, which is highly inflamed, red, and swollen, so that it cannot be moved, and the slightest touch is shrunk from. The inflammation may attack several, or perhaps all the joints, but more commonly two or three are affected one day, and then others are suddenly attacked, the first joint implicated growing almost as suddenly comparatively well. There are also frequent sour, acid perspirations, which do not afford relief. The duration of the disease may be a fortnight to three weeks, when either complete recovery may occur, or stiffness and pain in the joints may remain long after the acute symptoms have subsided. If the temperature of the body rises to 104° Fahr., it must be considered an alarming symptom, indicating heart affection, as described below.

A very frequent accompaniment of acute rheumatism is a peculiar affection of the heart, the disease extending inwards and attacking that organ. This is recognised by pain in the left side, by a feeling of distress and tightness in the chest, by the presence of difficulty of breathing, and by a long breath causing increase of pain. There may also be occasional palpitations and irregularity of the heart's action, manifested by the pulse being intermittent and affording a peculiar jar or thrill to the fingers. During an attack of rheumatic fever such symptoms should be daily watched for, as they denote a serious aggravation of the illness, from inflammation of the menbranes covering or lining the heart.

Of the latter membrane are formed the delicate valves guarding the portals of the four chambers of the heart. When these valves become inflamed there is tendency to deposit of material from the blood upon them, or they may be contracted, or their action otherwise interfered with. Then there is an impediment to the easy passage of the blood, which even years afterwards may evidence itself by alteration in the sounds of the heart, and by the too certain result—*dropsy*—from which death sooner or later occurs. Acute rheumatism, therefore, from its tendency to affect the heart, must always be regarded as serious, and must be watched with care.

Treatment.—In ordinary cases keep the patient at rest during the whole period of the disease, and apply a hot alkaline lotion to the affected joints. The lotion should be composed of half a pound of common carbonate of soda or carbonate of potash dissolved in one quart of hot water, with which cloths should be well saturated, wrapped round the parts, and the whole covered with oiled silk. If the pain from movement is not too great, a hot bath at 98° Fahr. should be given daily, a couple of pounds of common carbonate of soda having been previously dissolved in the water. If the bowels are not moved naturally, they should be acted upon occasionally by medicines, as Recipes 1 and 2, and citrate of magnesia draughts should be taken two or three times daily. Dover's powder in ten or fifteen grain doses may also be given at night, when sleeplessness from pain is complained of.

Throughout the whole of an attack of acute rheumatism, low diet and abstinence from stimulating liquors are necessary.

[If procurable, the colchicum and alkaline mixture (Recipe 72) should be used. When the symptoms indicate extension to the heart, a blister should be applied over the seat of pain, and calomel and opium (Recipe 43) should be given every three hours, until a metallic taste in the mouth or slight soreness of the gums is experienced.]

RHEUMATISM, CHRONIC.—This form of rheumatism is more frequent in elderly persons, especially of the poorer classes. Chronic rheumatism may attack either the joints or the muscles, and in the latter case is sometimes called *Muscular Rheumatism.* There is pain in the larger joints, accompanied sometimes with swelling, but the smaller joints, as the knuckles of the fingers, do not always escape. It is to this form of the malady that the term *Rheumatic Gout* is often applied. Frequently there is also pain in the muscles of the limbs, sometimes wandering from one part of the body to another. Lumbago, as already described, is a form of muscular rheumatism, and so is frequently the affection called sciatica, presently noticed. (*Vide* p. 266.) In chronic rheumatism there is generally neither fever nor perspiration, and often no obvious inflammation or enlargement of the painful parts. Sometimes the pain of chronic rheumatism is relieved by warmth, in other cases warmth increases it.

Treatment.—The first thing to attend to is the removal of the causes by which the malady is kept up. Rooms with damp floors and walls, insufficient clothing, especially want of flannel, and absence of nourishing diet, are among the most prominent. As medical treatment, warm clothing, generous living, Dover's powder occasionally at night, and rubbing the parts with grass oil may be recommended.

Stiff neck, which is a form of muscular rheumatism, may often be much relieved by spreading a layer of cotton wool over the part, and then ironing it with a hot flat iron.

[As internal remedies, Recipes 51 and 72 may be procured and tried in succession. As external application, Recipe 89.]

RICKETS.—This is a softening and yielding of the bones, occurring in delicate scrofulous children. The bones of the leg bend outwards, the wrists, ankles, and knees become thick and depressed, the belly grows prominent, the head may become enlarged, and there is languor and weakness of the whole system. The child should be kept from walking till the legs are able to bear its weight, and cod-liver oil and ass's milk should be given. Lime water and milk in equal parts is also useful, and iron may be given as a medicine. The child should be liberally dieted, and have plenty of fresh air, with, if possible, sea bathing.

RINGWORM.—*Vide* SKIN DISEASES, p. 274.

ROSEOLA.—*Vide* SKIN DISEASES, p. 272.

SALIVATION.—This term signifies an increased and unnatural flow of saliva. The salivation sometimes occurring to pregnant women has already been referred to under the DISEASES OF PREGNANCY (*vide* p. 251). But salivation may occur from inflammation of the gums and mouth, as the result of cold, of debility, of indigestion, of teething, and of taking mercury and some other substances.

In such cases there is swelling of the cheeks, tongue, and gums, enlargement of the glands under the jaw, stiffness of the latter, shooting pains in the face, fœtor of the breath, and a profuse discharge of saliva. When salivation has been caused by mercury, the fœtor is more marked and peculiar, and there is a more or less distinct red line on the gums near the teeth. As the swelling becomes greater, the tongue and cheeks are indented by the teeth, and ulcers form. The usual duration of mercurial salivation is from ten days to a fortnight; in some cases the inflammation may be more prolonged, and the resulting ulcers slower in healing. The treatment should consist in the use of astringent gargles, of which alum is one of the best (Recipe 100), or port wine and water in equal parts may be used; sometimes one, sometimes the other appearing to suit best. The patient's strength must also be supported by fluid, but nourishing and easily digestible diet. Afterwards, or when salivation has occurred from debility from the first, tonics, as quinine and iron, will be advisable, while remaining ulcers should be daily touched with a concentrated solution of alum (three drachms of powdered alum dissolved in one ounce of water) or with vinegar applied by means of a feather or camel-hair brush. It should be recollected that occasionally peculiar constitutions are met with, in which a very small dose, even a few grains, of any mercurial preparation, is followed by salivation. Before giving any form of mercury it is therefore well to ascertain if any such peculiarity of constitution exists, either in the patient, or in any of his family.

[Recipes 102 and 103 should be procured and used if the alum gargle is not satisfactory.]

SCABIES, or ITCH.—*Vide* SKIN DISEASES, p. 276.

SCALD HEAD.—*Vide* SKIN DISEASES, p. 281.

SCARLET FEVER, or SCARLATINA.—The latter word signifies precisely the same as scarlet fever. It is not a diminutive, and is not properly employed to denote milder cases, although its use in this sense is a common popular error. Scarlet fever is a contagious eruptive fever, generally occurring early in life. It seldom happens twice to the same person. The period at which the disease comes on after exposure to infection is from seven to ten days, although there are instances in which it shows itself much quicker. For twenty-four hours there is fever, nausea, pains about the body, and restlessness. On the second day the rash appears, spreading from the face and neck over the breast, trunk, and limbs. First, there are a multitude of minute red points. Then these run together, or others appear, until the whole surface is scarlet. The skin itches, and the tongue presents prominent red spots with fur between, or looks as if sprinkled with cayenne pepper. The whites of the eyes also sometimes become scarlet. Either previous to, or accompanying the eruption, sore throat, with difficulty of swallowing, commences. On inspection the tonsils are found enlarged, inflamed, and scarlet in appearance, or often coated with a white mucous deposit. Sore throat is indeed the main characteristic of scarlet fever, as cough is of measles. The rash generally lasts till the fifth day, when it begins to decline, disappearing on the eighth day, with much scurfiness of the skin. During the whole progress of the disorder there is considerable fever, and if the attack is severe there may be delirium.

Scarlet fever is a dangerous disorder, on account of its liability to appear in aggravated forms. In one variety of the disease the tonsils inflame and suppurate, and the glands of the neck may do so also. The throat affection may extend to the ears, causing violent pain, or inflammation in those organs. In another variety of the malady the succession of symptoms is irregular, the face is dusky, the rash livid in colour, and the fever typhoid in character. The danger is then extreme, and the patient requires stimulants most urgently. In a third form of the disease, the fever and sore throat may appear without any rash. This variety is often fatal, and may be mistaken for diphtheria.

After almost any variety of scarlet fever the subject of the disease is very liable to different kinds of dropsy. The whole body may become swollen (*anasarca*), the urine scanty and smoke-coloured, and the kidneys affected as in Bright's disease; or there may be swelling of the abdomen only (*ascites*), or enlargement of one or more of the joints. Discharges from the nostrils, discharges from the ears, ophthalmic affections, troublesome diarrhœa, are also frequent sequelæ of scarlet fever.

The disease for which scarlet fever is most likely to be mistaken is measles, and the prominent symptoms of each are therefore given in contrast below.

MEASLES.	SCARLET FEVER.
Cold in the head.	None.
Hoarse cough.	None.
Eruption, crimson-coloured.	Vividly scarlet.

MEASLES.	SCARLET FEVER.
Eruption raised in crescent-shaped patches.	Not raised, not crescent-shaped.
Affection of the chest or bronchitis accompanying.	Affections of the throat accompanying.
It is very common in India.	Seldom occurs in India.

Scarlet fever may be further distinguished from the eruption of measles, or from erythema, or erysipelas, by the production of a white line on the skin by scraping it with a pencil, or the back of the finger nail. This white line lasts a minute or so and then disappears, a condition not produced in the other forms of skin affection mentioned.

Treatment.—The diagnosis of scarlet fever from measles is important, as in the latter disease the patient should be at first kept warm, in order to guard against affections of the chest. In scarlet fever the patient should be at first kept cool, until after the eruption shows, when cold may be complained of, and more clothing should be allowed. The patient should be placed in a well-ventilated room, and isolated to prevent the spread of the disease to others. During the preliminary fever alkaline medicine, as citrate of magnesia (*vide* p. 13), should be given, and the bowels should be opened by castor oil or senna for a child, and by sulphate of soda (Recipe 2) for an adult. When the eruption has fairly come out the use of violet powder, or sponging gently with tepid water, is often both grateful and beneficial. During the height of the disease the diet should consist of good broths and gruels, and when convalescence is established a more generous diet, with iron and quinine, should be allowed. When the throat is much inflamed or ulcerated, a poultice of linseed meal, or hot moist flannels, or sponges, may be applied externally, and a solution of alum of the strength of five drachms to the ounce of water should be brushed over the tonsils, or three or four grains of finely powdered alum may be blown into the throat from a quill or glass tube. The throat should also be well steamed internally several times daily, by permitting the steam of hot water to pass into the mouth. But in reality little good is effected in this disease by medicine. The ventilation of the sick chamber, the prompt removal of *excreta*, the support of the patient with good nourishing diet, especially in those cases where the throat is very inflamed, or when little or no eruption appears, and the avoidance of all causes of nervous or mental excitement, are the principal measures of cure.

It must be recollected that scarlet fever is very infectious. The patient, therefore, should be isolated from the first, and disinfectants constantly used. A teaspoonful of carbolic acid, or Condy's fluid, or McDougall's disinfecting powder, or a little sulphate of iron (the *hera-kusees* of the bazaars), should be placed in the *pot de chambre* before it is used, and the contents should be carried away and buried. All clothes used during the period of sickness should be boiled in a solution of carbolic acid or Condy's fluid, or be otherwise disinfected (*vide* pp. 504, 575). All glasses, cups, or vessels should be scrupulously cleaned before being used by others. Small pieces of rag should be used instead of pocket-handkerchiefs, and they should be destroyed by burning immediately afterwards. The sick room should be cleared of all needless furniture or drapery (*vide* p. 575).

Dropsical swellings, or other after effects of scarlet fever, must be treated as mentioned under the heads of the different ailments. If after scarlet fever any portion of the skin peels off in flakes, as is sometimes the case, anointing with sweet oil or glycerine will relieve the soreness.

SCIATICA.—Sciatica is a painful affection of the large nerve passing down the back of the thigh. There is acute agonising pain extending from the buttock to the ham. It is known from rheumatism by the pain being limited to the course of the sciatic nerve, and by being little if at all aggravated by motion. But sometimes the muscles in the neighbourhood of the nerve are also affected with rheumatism, when the distinction is not so clear, as the pain is referred to the whole of the back part of the limb, instead of to a line nearly in the centre of that part, as occurs when the nerve only is implicated. It may originate from cold, or from sitting on a wet seat; or in more rare cases it is a consequence of constipation, being then produced by the direct pressure of fæcal matter in the bowels on the sciatic nerve, before it passes by the nates. It also sometimes accompanies attacks of rheumatism.

Treatment.—This consists in rest, wearing warm flannel drawers, hot fomentations, the use of the hot flat iron as recommended for stiff neck (*vide* p. 261), or small blisters over the more painful parts. Brisk purgatives, as Recipes 1 and 2, in full doses, should also be given to unload the bowels. In cases connected with rheumatism the treatment appropriate to chronic rheumatism should be employed. Galvanism may also be tried.

SCROFULA.—This is a depraved condition of body most frequently hereditary, and is often indicated in the child by a thick upper lip and long eyelashes. The scrofulous child may have crooked limbs, swollen belly, and be weak in intellect. If it grow up it is pale, ill nourished, with a tendency to eruptions, to swelling of the glands in the neck, to unhealthy ulcers, and to affections of the joints. Scrofula is produced by poor living and damp lodging, by unventilated apartments, combined, it may be, with drunkenness and venereal taints. Ill-advised matches between near relations are also supposed to engender scrofulous children. Good air, good food, and exercise may eradicate the taint. Cod-liver oil, iodine, and the various preparations of iron are the principal remedies. Any persistent cough or cold in scrofulous people is always suspicious, as such persons are particularly liable to disease of the chest or consumption.

SCURVY.—Formerly scurvy was regarded as altogether a disease incidental to sailors obliged to live for a lengthened period on salt provisions. But the scorbutic condition is very common in India, and in districts far removed from the sea. *Latent* or *hidden* scurvy is indeed much more prevalent than is generally believed; arising from the difficulty experienced in many parts of the country, and in many positions into which Europeans are thrown, of obtaining a sufficient amount of fresh vegetable diet. There are indeed extensive tracts in India where scurvy may be considered a disease of the soil. Wherever the ground is highly impregnated with saline matter, especially on the borders of the desert regions, and on much of the arid and sandy sea coasts—wherever from such causes there is insufficiency of nourishing and especially of fresh vegetable food—especially if such localities are damp and low—there scurvy in a more or less complete form will be evident. Thus the malady known as *Berí-Berí*, so frequently existing on the sea coasts, the Delhi sore, the Scind boil, the Gwalior ulcer, the Aden boil, the Surat boil, the Burmah boil, may also be frequently traced to the influence of the above-mentioned conditions.

But there is another cause why, among Europeans, the scorbutic taint frequently exists, either hidden or declared. Even those with a table well supplied with fresh vegetables often insensibly acquire a habit of eating less vegetable material as part of their daily food than they would do in Europe. This partly arises from loss of appetite during the hot weather, so that a smaller quantity of food is taken than would be the case in a colder climate; the greater portion consisting of such aliment as soups, curries, and other dishes tempting to the palate, but which, not being solid, can be consumed without expenditure of physical force. Everyone who has been long in India must admit the truth of the foregoing, and will remember that during the hot season broths and liquid food could be often taken when a solid meal would be loathed. And soups and curries being mainly composed of animal constituents, a diminution of vegetable matter in the diet is the result.

But although the want of vegetable matter in the diet will induce scurvy, still this is not the sole cause of the affection. Experience leads to the conclusion that all insufficient, exclusive, or artificial diet, if long used, will induce symptoms of the disease; but more especially and in a shorter period if the defects of diet involve a loss of fresh succulent vegetables.

Another cause predisposing to scurvy, and existing in India, is the darkened dwellings in which so many persons exist during half the year. The hot wind, and with that the light, are shut out by the European, while the Native lives in a hut, or even the better classes in a house, probably with only small external openings. That the absence of sunlight is a strong predisposing cause of scurvy in Arctic regions is sufficiently proved, and there is every reason to suppose the same result occurs in the tropics.

The symptoms of scurvy when the disease has passed the latent condition, are, weariness, dejection of spirits, dull pains in the limbs, palpitation and shortness of breath, while the tongue becomes pale, and the gums swollen, spongy, and bleeding on the slightest touch. The teeth are often loose, the breath foul, and as the disease advances blue spots appear on different parts of the body. Slight pressure or injury now produces a bruise, scratches become ulcers, and old wounds or scars open afresh. The joints become swollen and stiff, great emaciation takes place, dropsical swellings occur, diarrhœa or dysentery sets in, and the patient dies exhausted.

Treatment.—In all cases of scurvy, whether simply manifested by obscure premonitory symptoms, or when evident and confirmed, the use of fresh vegetables and of fresh meat is the great remedy. Lemon juice should also be taken daily, or, if this is unobtainable, nitrate of potash (the *shora* of the bazaars, *vide* p. 24), in ten-grain doses, may be given twice a day. As adjuncts, fruits, sugar, and molasses, cocoa, pickles, vinegar, onions, all the *cruciferous* vegetables (as broccoli, kale, cabbage, turnips, mustard, cress, watercress) and potatoes will be the most beneficial.

When debility is very marked the recumbent posture should be maintained, or otherwise faintings, which have proved fatal, may occur. Wine, ale, and beer, and a fresh infusion of malt, should also be given. If aperients are required, fresh infusion of tamarinds, cream of tartar, or sulphate of soda should be used. Ulceration of the gums requires astringent gargles of alum, or of port wine and water (*vide* SALIVATION, p. 262), or of decoction of pomegranate (*vide* p. 24). If diarrhœa persists, a milk diet is advisable.

The cure of scurvy, when it is once established as a confirmed disease, is more difficult than its prevention, and the latter should be constantly held in mind by those placed in such positions as to be more than ordinarily exposed to scorbutic influences. The diet should be regulated so as to contain a proportion of antiscorbutic material, and if fresh meat and vegetables cannot be obtained in sufficient quantities, vegetables which may be kept—as potatoes, onions, or preserved vegetables, or bottled lime juice, or vinegar and milk—should be used daily.

SCORBUTIC ULCER.—It has already been stated that trivial injuries in those affected with scurvy frequently cause ulcers, often of very foul and ill-conditioned appearance. Eating into the flesh, they sometimes produce great injury and disfigurement. They have often prevailed epidemically among troops who had become more or less scorbutic. These ulcers may attack any part of the body, and are generally attended with impaired appetite, foul tongue, spongy gums, and debility. The treatment consists in the employment of antiscorbutic remedies internally, and of the external application of various lotions or ointments, of which Recipes 86 or 97 may be used.

[But a better application for a scorbutic ulcer is Recipe 96, or if the sore is painful Recipe 93, which should be procured for use.]

SEA SICKNESS.—For sea sickness there are many remedies of doubtful efficacy; none decidedly curative. Cold brandy and water benefits some persons, but makes others worse. Two drops of creosote on a lump of sugar will sometimes check the sickness. Five drops of chloroform dissolved in a glass of sherry, with half a tumbler of cold water, is often more successful. Or chloroform globules, each containing about five minims of chloroform, may be procured from the chemist. Champagne suits some persons. Applying ice-bags to the spine will check vomiting for a short voyage, as across the English Channel. On commencing a sea voyage of any length it is well to empty the stomach, and to remove acidity with an emetic, composed of a teaspoonful of soda and a tablespoonful of mustard, in a large tumblerful of warm water; or several good purgative doses should be taken. This will render the person much less liable to sea sickness afterwards.

SKIN DISEASES.—These affections are very numerous, and have been subdivided until the list has assumed very lengthy proportions. But, practically, diseases of the skin may be divided into the five following heads:—

1. RASHES; or superficial alterations of the colour of the surface of the skin, generally of a reddish hue, and which do not proceed to the formation of watery secretion or matter.

2. VESICLES; which, commencing as little pimples, eventually contain a globule of watery fluid in the summit.

3. PUSTULES; which also, commencing as little pimples, eventually discharge matter.

4. SCALES; or SCALY ERUPTIONS, so called in consequence of flakes of diseased upper skin being cast off.

5. TUBERCLES; commencing as round bodies under the skin, which eventually ulcerate.

1. RASHES.—The rashes most commonly met with are

Ephelis, or Freckles; *Erythema*, popularly known in some districts as *The Blush*; *Roseola*, called *Rose Rash*, or *Red Gum*; *Urticaria*, or *Nettle Rash.*

FRECKLES, OR EPHELIS.—These are little coloured patches, caused chiefly in fair people by exposure to the sun. They are not painful, nor in any manner injurious. They may be got rid of by avoiding exposure, and by using a wash made by beating twenty sweet almonds into a paste in a mortar, adding a pint of warm water, and then straining the emulsion; or, a wash composed of equal parts of lime-water and milk may be employed. The face should be sponged with the lotion chosen, which should be allowed to dry on the skin. The latter may be cleansed with glycerine soap and water in half an hour afterwards.

ERYTHEMA, OR THE BLUSH.—This consists of light-red patches of various size and form, appearing in different parts of the body, and generally passing away in three or four days or a week. It frequently occurs previous to the first monthly flow on the legs of young girls; and in infants it may attack the thighs and genitals. It is not dangerous, and is rarely attended with fever. It may accompany teething in children, and in adults often follows drinking cold water when the body is heated. The bowels should be acted upon by a gentle purgative, the patient should be careful in diet for a few days, and violet powder may be applied to the part.

ROSEOLA, ROSE RASH, OR RED GUM.—This is a peculiar form of affection allied to erythema, occurring generally to children during teething, and which, although in itself a trivial ailment, demands attention, having frequently been mistaken for the more serious disorder measles, which it in some degree resembles. It is distinguished from measles by its occurring suddenly, without any prior cold, sneezing or watering at the eyes, and by the complain being in irregular patches of various sizes and forms, and not crescentic, or half-moon shaped, as the eruption of measles presents. It is distinguished from scarlet fever by the absence of sore throat. It is known from erythema by its more rosy tint. There are several kinds of roseola, only one of which, however, need be particularly mentioned, viz., *roseola annulata*, which appears, as the name implies, in rosy rings, enclosing a portion of healthy skin. It should be noted that sometimes the eruption of roseola precedes the eruption of small-pox, and when this latter disease is in the neighbourhood, and rose rash occurs to a child, it must be regarded as a suspicious circumstance, as the possible forerunner of small-pox. By some, red gum (*Strophulus*) is considered distinct from roseola.

Treatment.—Roseola seldom requires much medicine. If it presents in children, the gums, if swollen and painful, should be lanced; if the bowels are costive, they should be opened with a little castor oil or senna, and if there are symptoms of acidity of the stomach a few grains of bicarbonate of magnesia may be given. When the malady occurs to adults it will be generally in association with one or other form of dyspepsia, for which appropriate treatment will be needed.

URTICARIA, OR NETTLE RASH.—This is an eruption resembling in appearance, and in the accompanying stinging pain, the condition of the skin produced by contact with nettles. But sometimes the rash commences as long white wheals, surrounded by a red band or margin, as if the part had been struck by a cane. The rash frequently appears suddenly; may last only a few minutes, or for a day or two, and may disappear as suddenly; or it may vanish in the daytime, returning at night. There is nearly always severe itching or tingling, which may be alleviated by applying sal volatile and water in equal parts. From the sudden manner in which it occurs, sometimes attended with vomiting and feverishness, it often excites considerable alarm; but it is not dangerous, and depends, in a great majority of instances, on improper diet or indigestion. In some persons it follows eating shell-fish; in others it has been caused by strawberries. It often succeeds drinking cold water when the body is in a heated condition. In other cases the cause is quite obscure. Some persons are much more subject to this malady than others. If there is reason to suppose the stomach contains indigestible matter, as will probably be the case if the rash comes on after a full meal, particularly after a hearty supper or a late dinner, and especially if there is nausea and vomiting, an emetic should be given (Recipe 77). In other instances gentle aperients, as Recipes 1 and 2, will be generally sufficient.

2. VESICLES.—The principal diseases which may be classed under this head are: *Ringworm; Scabies*, or *Itch; Prickly Heat*, or *Lichen Tropicus; Prurigo*, or *Itching; Herpes*, or *Tetter; Eczema*, or *Running Scall;* also called, when in some positions, 'Grocer's Itch.'

RINGWORM.—This is a *contagious* form of skin disease, commonly attacking the heads of children, but sometimes appearing on the face, body, or limbs. Ringworm is a fungus which is the lowest species of vegetable growth. It is propagated by sporules or globules so small as to be discernible only by the microscope. In well-developed instances there are circles of minute pimples, vesicles, or scurf, according to the period at which the malady may be first noticed. These increase in irregularly circular-shaped patches, destroying the hair, becoming scaly in character, and eventually, if scratched, being covered with scabs. The microscope has revealed the presence of a particular kind of fungus in ringworm, to the growth of which on the skin the malady is supposed to be due. Without a strong magnifying glass, it is often difficult to decide the question whether a suspicious-looking spot on the scalp of a child is ringworm or not. Cases are often seen which exhibit here and there, or it may be only in one small spot on the scalp, scurfy-looking places, without apparently any diseased hairs. But when ringworm is present, the scurf or scales will always be found to have little bits of diseased hairs entangled with them, and which diseased hairs are perhaps not visible to the naked eye. When there is a scurfy spot on the head, although the place is *not* red, and when the hair over this spot is thinned, although the place is *not* bare, examination with a strong glass will often show on the diseased area dark-looking portions of hair-shafts running in a line different from that of the normal or healthy hairs. When this is the case, ringworm is certainly present; and, placed under a microscope, the hairs will exhibit the ordinary fungous growth accompanying the disease.

Treatment.—At the onset, the head for one inch round the part should be thoroughly shaved, and the hairs on the part should be extracted with a pair of broad-nibbed forceps, and every particle of scaliness should be washed away. Then strong vinegar, or strong alum water (alum four drachms, water one ounce), or ink may be applied to the part affected. Ink is a popular and useful remedy, the good effects resulting from the iron and tannin it contains. This may cut the malady short; if not, the remedies as mentioned in the small type below should be procured. At the same time, the general health of the child must be attended to, and occasional doses of castor oil or senna should be given if there is any tendency to constipation of the bowels.

As ringworm is highly infectious, other children must be kept as much as possible away from the patient, and separate combs, brushes, towels, soap, and washing utensils must be provided.

[If the above measures do not succeed, or in any case as soon as practicable, it will be well to obtain a remedy known as 'Goa Powder,' and which has also been advertised for sale under the term *Chrysaroline.* It is the powdered pith of an unknown tree growing in the Brazils, and first brought to India by the Portuguese. It is reputed to be an infallible remedy for Indian parasitic ringworm. When applying 'Goa Powder,' the diseased skin should be moistened with water, and a little of the powder should be rubbed on with the finger night and morning, until the cure is effected. There is also a solution of 'Goa Powder,' which can be applied with a brush, and which in some cases is more convenient for use. It discolours the skin less, and is therefore better adapted to cases in which the disease is on a conspicuous part. If the disease is on the face, care should be taken that the powder or solution is not applied too close to the eyes, as they may produce inflammation of those organs. The real 'Goa Powder' is scarce and much adulterated, and caution is therefore necessary in purchasing the remedy.

Other remedies for ringworm which may be tried in obstinate cases, are, iodine paint to be applied with a feather once daily, until the skin is blistered, or very tender. Nitrate of silver, which may be applied *very lightly* once, but which should not be repeated without the advice of a medical man. This application blackens and blisters the skin; the black appearance coming on, not immediately the nitrate of silver is used, but showing some hours afterwards. A solution of carbolic acid (ten grains to the ounce of water), applied with a brush, often cures the disease. This application may be repeated once or twice according to the effect it produces, desisting as soon as the skin is tender or blistered.

If these measures are not successful, mercurials may be resorted to, and an ointment, composed of equal parts of simple and mercurial ointment, should be well rubbed into the part for half-an-hour twice daily. The patent preparation known as 'Pearl Ointment,' and composed of a mixture of lime and lard, is a very efficacious remedy in ringworm.]

SCABIES, OR ITCH.—Itch commences as an eruption of small vesicles about the size of a pin's head, or rather less, generally between the fingers, afterwards spreading to other parts of the body. It is caused by a small microscopical animalcule, which burrows under the skin in the neighbourhood of the vesicle. This insect is called the *Acarus scabiei*, and is round in shape, varying from one-seventh to one-quarter of a line in length and breadth. The itching produced is intolerable, especially at night. After itch has continued some time, or been neglected, it assumes the form of a pustular eruption, discharges matter, and may degenerate into open sores.

The female *Acarus scabiei*, being larger than the male, is sometimes visible to the naked eye, in the form of a greyish-white moving atom. When seen under the microscope it presents a tortoise-like shape, and is found to be studded with hairs and bristles, the head terminating with two pairs of mandibles. With these it burrows through the thinnest part of the *epidermis* or upper layer of the skin, selecting such spots as the space between the fingers, or the inside of the wrist, where the structure is thinnest and softest. Once fairly buried, it does not come out again, but burrows and forms galleries within the skin, where other insects are produced, which in their turn burrow and reproduce their kind. It is, however, a disputed point whether the little vesicles marking itch are produced by the young insects making their way to the surface, or by a pernicious fluid ejected by the mites.

Treatment.—The parts affected should be *well* rubbed twice daily with compound sulphur ointment (Recipe 92). After three days the patient should take a hot bath and be well washed with yellow soap. Then the sulphur ointment should be again employed. Beyond opening the bowels if confined, no internal treatment is necessary. Itch is entirely a local disorder, and not curable by medicines. It is a popular impression that the itching arises from some impurity of the blood, so loth are people to admit faults arising from uncleanliness; which if not originating the insect causing the disease, certainly favours its location in the skin.

When the hands only are affected, they should be well rubbed with the ointment, and then enclosed in a bag of oiled silk all night, and the rubbing repeated in the morning, after a good washing with soap and water.

PRICKLY HEAT, OR LICHEN TROPICUS.—This is probably the first complaint a new-comer to India suffers from, and although unattended with danger, it is often very distressing and annoying. The symptoms are—itching, tingling, pricking, and sweating, while the skin is covered with a bright red eruption, presenting at some stages of its progress little watery heads or vesicles. The eruption is deepened in colour by exercise, or by hot drinks, as tea, causing perspiration.

Prickly heat may be regarded as rather salutary than otherwise, as indicating a free action of the skin, and the eruption should not be suddenly checked. Light clothing, temperate diet, and an occasional aperient, are the remedies. Children suffering from prickly heat should be limited to farinaceous food, as bread, rice, sago, arrowroot, with milk, and a little broth. If thirsty and feverish, citrate of magnesia may be used as a drink (*vide* p. 13). As a local application equal parts of sal volatile and water will be found to allay itching.

PRURIGO, OR ITCHING.—This is an affection of the skin, in which intense itching is the most prominent symptom. Sometimes, the parts affected present to the naked eye no deviation from the natural state, except redness or scabs produced by scratching. But more commonly they are covered with pimples or vesicles, raised above the surface of, and redder than, the skin. The affection generally attacks the posterior parts or privates, but sometimes occurs in the flexures of the limbs, or more rarely on the shoulders and back. It is very common among old people and children; it also frequently occurs to women during pregnancy (*vide* p. 255). A variety of the malady is known as *Prurigo formicans*, when there is not only an intolerable itching at one or more parts, but the patient also complains of a feeling like the creeping of ants or the stinging of insects (hence the specific name) over the whole body. These latter sensations are more generally complained of by Natives than by Europeans, and are sometimes so distressing as to prevent sleep. The principal causes of this affection are debility, want of cleanliness, and friction or irritation of the skin.

Treatment.—In the treatment of this malady, if severe, attention must be paid to the diet. All stimulating condiments or drinks should be forbidden, and only plain, easily digested food allowed. Internal remedies are seldom of much use, excepting opium or chloral, which may be required to procure rest. The local applications recommended are very numerous, but probably cold lotions (Recipe 97) or ice-cold water are the best. When this troublesome local itching occurs, the absence of lice should be ascertained, for it sometimes arises from their presence, and can then only be cured by destroying the insects (*vide* LICE, p. 459).

HERPES, OR TETTER.—There are different varieties of this eruption. It often occurs on the lips, in the shape of five or six little vesicles on an inflamed base, which burst and form a scab. The foreskin is another part not uncommonly thus attacked. The most serious variety is that called the *Herpes Zoster*, or 'Shingles.' In this form of herpes, a line of vesicles rises, reaching from the spine round the lower part of the chest to the breast bones. This is often accompanied by severe shooting pain and feverishness. The vesicles form, burst, and scabbing takes place, the whole process lasting about one fortnight. Indigestion is the most usual cause of all varieties of herpes. The *first two forms* mentioned rarely require medical treatment. For the *latter* the bowels should be kept open, the diet regulated, and an alum lotion (Recipe 97) applied. If the pain is great, a dozen poppy heads may be bruised, steeped for ten minutes in a pint of boiling water, and a strip of lint wet with the fluid may be placed over the affected part.

ECZEMA, OR RUNNING SCALL.—There are various kinds of eczema. It occurs as an eruption of small raised vesicles crowded together on broad irregular patches of bright-red skin, accompanied by tingling and smarting, and usually presenting in the flexures of the limbs, as the groins or armpits. The fluid in the vesicles soon becomes milky and turbid, and in four or five days the vesicles burst, when the fluid is discharged and dries into thin yellowish-green scabs. Fresh vesicles form on the surrounding skin, while the parts already affected remain sore. The duration of this malady may be from a week to months, or more. The cause may be indigestion; it also may arise from heat, on a fair and tender skin, when it is called *eczema solare*, or 'heat spot.' It also arises from the handling of dry powders, or from handling certain metals. From its frequently affecting the hands of grocers, it has in such cases been called 'Grocers' Itch.'

In children it may be connected with teething; in women, with irregular and painful monthly courses. Eczema often assumes a chronic form, recurring in different parts of the body, at certain seasons, as the spring and fall. In such cases the cause is always obscure.

Treatment.—This consists in attention to the general health, in the removal of indigestion, and in measures adopted against any evident irregularity in the monthly courses of the female. As a local application, olive or salad oil should be smeared on the parts, and if there are scabs or crusts, a hot linseed-meal poultice should be applied at night. The scabs will come off with the poultice in the morning, and oil may be again applied. The parts may be occasionally sponged with hot water and glycerine soap, but only when cleanliness requires it.

[If the above-mentioned local applications are not satisfactory, glycerine should be procured and used instead of the oil. If the malady still persists, lead ointment (Recipe 96) may be applied. In some cases, an ointment composed of thirty grains of sulphate of zinc, mixed in half an ounce of simple cerate, is more beneficial: in others, greasy applications do not suit, and the lotion (Recipe 97) may then be used. When eczema attacks children behind the ears, an alkaline wash (Recipe 99) is often very useful, but in such cases attention to teething, if in progress, will be also necessary. When in adults the eczema persists after the acute stage has passed away, the malady becoming what is called 'chronic eczema,' the *liquor arsenitis potassæ*, or Fowler's solution of arsenic (Recipe 27), should be given three times a day, and continued until itching, or watering of the eyes, redness of the whites of the eyes, stiffness of the eyelids, or griping pains in the bowels, indicate that the medicine has affected the system. When arsenic solution is given in this manner, it should be taken about a quarter of an hour after each meal.]

3. **Pustules.**—The chief pustular affections, *i.e.* those from which eventually matter is discharged, are *Scald Head; Impetigo*, or *Crusted Tetter*, called also *Scall* and *Cowrass; Acne*, or *Copper Nose; Sycosis*, or *Chin Welk.*

Scald Head.—Scald head is a contagious disease, caused by a fungoid parasite which attacks the skin and grows near the root of the hairs. The affection commences with a slight itching and redness, followed by a red-coloured eruption, palpable also to the touch. The eruption is not circular in shape like ringworm, but of irregular and undecided form. In about twelve hours each little red point of which the eruption is composed contains a small globule of watery fluid. This and the subsequent thicker secretion drying on the surface of the skin assume a honeycombed appearance, some part of the scab being depressed and some elevated. The crust is often perforated by hairs, and frequently presents the appearance of a series of concentric rings. As the disease advances the secretion becomes more thick and copious, until there may be a layer of yellowish-looking scab or crust over the whole head. In still more advanced stages of the disease, or when the malady has been neglected, sores and ulcers form on the scalp, underneath its scabby covering, and which have even affected the bones of the skull. The disease is sometimes called 'crusted ringworm,' or *porrigo.*

Treatment.—The head should be poulticed and bathed with hot water, until the whole of the scabby matter is removed, and the surface is quite clean. Then oil or glycerine should be applied, as recommended for *ringworm*, and the scalp should be covered with a close-fitting skull-cap. At the same time, constitutional treatment in the shape of laxative medicines if necessary (as senna or castor oil) should be employed; and, as a general rule, it will be desirable to give quinine, as the children suffering from scald head are usually weak and debilitated.

As when ringworm is present, the child with scald head should be isolated as much as possible, and should be provided with separate brush, comb, and washing conveniences.

[For scald head it will also be desirable to procure and use carbolic acid ointment (Recipe 93). On this not being successful, an ointment composed of one drachm of tar and one ounce of simple cerate may be employed.

If the malady is noticed at the commencement, when there is only a little itching and redness, it may perhaps be cut short by the application of nitrate of silver or iodine paint, as recommended for ringworm. But, unfortunately, scald head is seldom recognised at the earliest period. As it does not commence, like ringworm, in any particular shape, but as an irregular reddened patch, if even noticed, it is often regarded as only flea bites, or some other trivial irritation.

When there are other children, and separation cannot be altogether effected, a disinfecting hair wash should be applied to the heads of those not affected. This should be made by adding half a drachm of glacial carbolic acid to eight ounces of water, or spirits of turpentine and water in similar proportions. The hair should be damped with this lotion twice or thrice a day, and although the smell may by some be deemed unpleasant, it will be a less evil than the otherwise almost certainty of scald head.]

IMPETIGO, OR CRUSTED TETTER, called also *Scall* and *Cow-rass.*—This affection is very similar in appearance to scald head; but may occur in any part of the body, and has not yet been discovered to be due to any parasite or fungous growth. It appears in clusters of small pustules, slightly raised above the skin, which burst in three days and discharge a thick fluid, which hardens into thick yellow incrustations, resting on an inflamed base of skin. The eruption may disappear in a few days, or it may last weeks or months, or recur for years, being worse at the spring or autumnal seasons. There is heat and itching of the parts affected, and occasionally febrile feelings. The causes are not well understood, but the disease frequently accompanies disorders of digestion, and is aggravated by want of cleanliness.

Treatment.—This consists in attention to the general health by the avoidance of food likely to induce dyspepsia, by exercise, and by occasional medicines, as Recipes 1, 2 for adults, and senna or magnesia for children.

[If the malady persists, adult patients should take arsenical solution (Recipe 27), as recommended for chronic eczema. The troublesome itching may be alleviated by an opium lotion, containing half an ounce of spirits of wine, half an ounce of tincture of opium, with twelve ounces of water. In chronic impetigo, sulphur baths are useful (*vide* p. 501).]

ACNE, OR COPPER NOSE.—This consists of isolated pustules, or a hard red base, most frequently seen on the nose, but sometimes occurring on the cheeks, forehead, or chest. It is generally connected with dyspepsia, with excess of eating or drinking, and in women with uterine disorders, or with the 'change of life.' The treatment consists in proper regulation of the diet and the mode of life generally, particularly as regards exercise, and in the relief of dyspeptic symptoms, or of symptoms referable to derangements of the womb. Acne pustules are sometimes called 'blackheads.'

SYCOSIS, OR CHIN WELK.—This commences with redness or smarting of the skin of the lips or chin, on which pimples appear, which eventually slowly come to a head and discharge matter. Fresh crops of such pustules occur for many weeks, until, in bad cases, the beard falls off in patches. The causes of this malady may be often traced to errors of diet. The hair should be cut close, poultices applied till the surface is clean, afterwards carbolic acid ointment (Recipe 93) should be procured. Aperient and alterative medicines, as Recipes 1, 2, 55, should also be given.

4. SCALES, OR SCALY ERUPTIONS.—The principal scaly eruption is *Psoriasis*, or *Dry Tetter*, of which there are two forms. The first form begins as small round shining, itching spots, soon becoming covered with thin white scales, which, falling off, leave the skin beneath slightly tender and reddened. The spots increase in size, but retaining the circular shape until they attain several inches in circumference, when they

become broken and assume the form of irregular scaly patches. This circular form of the malady is sometimes called *lepra*.

In the second form the disease commences as irregular scaly patches without the prior ring-like appearance. It frequently attacks the flexures of the limbs, and the inner surface of the thigh and arm-pits. When the hands are affected, it is often confounded with eczema of such parts, and is called 'Grocers' Itch.'

The causes are not well understood. At some times it seems to depend on digestive disorders, appearing and reappearing with such affections. At other times no cause can be assigned. The treatment requires attention to the general health, as the avoidance of any article of diet known to induce dyspepsia, and the relief of constipation if present by laxative medicines, as Recipes 1 and 2.

[It will also be desirable to procure Recipe 55, and after the acute stage has passed away, arsenical solution (Recipe 27) as recommended for eczema. Itching may be relieved by an opiate lotion, as recommended for impetigo. The patent 'Pearl Ointment,' as recommended for ringworm, may be rubbed in with advantage. Sometimes mercurial ointment diluted with a similar quantity of simple ointment is beneficial. At other times sulphur ointment (Recipe 92).]

5. TUBERCLES.—The principal tubercular form of skin disease met with in India is tubercular leprosy. Leprosy has already been described (*vide* page 218).

SMALL-POX.—This is a severe contagious eruptive fever, generally occurring but once in life. The period from exposure to infection to the appearance of the disease, is ordinarily twelve days. The early symptoms are shivering, headache, pain in the back and loins, and fever, the pulse becoming quick and the skin hot. If now the finger is pressed on the forehead, a shotty feeling may be noticed before the eruption is visible.

After two, or perhaps three days, an eruption of raised red spots appears on the face and forehead, and this is usually attended with some diminution of the febrile symptoms; on the third and fourth days the eruption spreads over the body; on the fifth day each pimple becomes a vesicle with watery head, round base, central depression, and inflamed margin. This central depression is characteristic, and distinguishes the malady from modified small-pox or chicken-pox. During the next three days matter forms in the vesicles, and they are more prominent. When matter has formed the peculiar and unmistakable *smell* of small-pox is present. If the case is severe the face is much swollen, and the eyes are closed by the swelling. About the tenth day, the pustules, first on the face, later on the hands and feet, begin to dry up, and about the fourteenth day they form scabs; these fall off from the twentieth to the twenty-third day, leaving the skin of a reddish-brown colour. Frequently scars or 'pits' are left by the healing of the pustules. As the eruption attains its height, or 'point of maturation,' the fever generally for two or three days very much increases; this is called the *secondary fever* of small-pox, and usually occurs on or about the eleventh day, which is the period in bad cases of the greatest danger from exhaustion. In some few instances the eruption of small-pox is preceded by an eruption known as *Roseola,* or *Rose Rash* (*vide* p. 272).

In very bad cases of small-pox the pustules are so thick on the skin that they almost or quite join; the disease is then said to be *confluent.* In such instances the fever is much more severe, and there is delirium, and the patient may die insensible. In severe cases of the malady the eruption may be observed in the nostrils, on the tongue, and in the mouth and throat (*vide* p. 290).

Small-pox sometimes occurring after vaccination, or after a previous attack of small-pox, is spoken of as *modified.* The course of the disease is mild, and the symptoms are scarcely to be distinguished from chicken-pox (*vide* p. 290).

Small-pox not unfrequently leaves after effects, which show themselves in disease of the eyes terminating often in loss of vision, in formations of matter about the joints, or in a weakened condition of system from which the patient is long in rallying.

Treatment.—Little good can be done by medicines, excepting the moderation of the fever. The eruption must run its course and pass through definite changes. The bowels should be kept moderately open by aperient medicines, and cooling citrate of magnesia draughts (*vide* page 13) should be given. The legs and arms may be occasionally sponged with warm water. The room should be well ventilated, but not kept too cold. Great cleanliness should be observed, and a basin charged with disinfecting powder, or Condy's fluid, or sulphate of iron (the *hera-kusees* of the bazaars), should be kept constantly at hand for the patient to spit into. Bed and body linen when changed should be immediately immersed in a disinfecting fluid (*vide* pp. 504, 576), if available; or otherwise put into boiling water. Instead of pocket-handkerchiefs, pieces of rag should be used, which should be destroyed by burning. Attendants should wash with soap frequently, and if possible afterwards in disinfecting fluid. All glasses, cups, &c., used by the patient should be scrupulously cleaned. The stools and urine should be received in a utensil charged with disinfecting powder, or carbolic acid, or with sulphate of iron (*hera-kusees*). The sick person should be as much as possible isolated, if practicable, in a separate building. The diet should consist of milk tea, gruel, beef tea, or chicken broth. When the pulse is weak and the strength fails, symptoms most likely to present with the secondary fever about the eleventh day, stimulants, as wine and ammonia, may be required. During convalescence quinine is useful.

There have been many experiments tried with the view of preventing the 'pitting' or scars resulting from small-pox, but it is doubtful if much good arises from these applications.

Flour or starch may be abundantly dusted over the face and body, which will relieve itching and discomfort, and absorb discharge. Olive oil and cold cream are also good applications. But in bad cases of small-pox, notwithstanding any application, there will always be some marking left. The patient should be as much as possible prevented from scratching, and if a child, the hands should be muffled, as the irritation from scratching increases the after marks.

[To lessen 'pitting,' the best plans would seem to be when the disease is slight, touching each pustule before ripening, or about the sixth day, with nitrate of silver, or smearing mercurial ointment over them. If the pustules are very numerous, these plans are not to be recommended. Then a better application is carbolic acid one part, salad oil ten parts, to be well mixed and applied over *one half* the body daily. The carbolic acid tends to destroy the unpleasant fœtor, and also moderates the violence of the suppurative process. When the pustules have burst, the consequent itching and irritation may be relieved by sprinkling the parts with violet powder, or oxide of zinc, or a mixture of both.]

From the period of the formation of matter, until the skin has become quite free from scales, is the time during which the disease is most highly contagious, although a person may convey the affection even up to thirty days after such period. To prevent infection from garments, they should be thoroughly aired, and then exposed in an oven to a temperature of 250° Fahr.; or they should be boiled in a solution of carbolic acid or Condy's fluid. If possible, it is best to burn mattresses and bedding used by small-pox patients. The sick room, and if possible the whole house, should also be disinfected after the patient is convalescent (*vide* p. 503).

VACCINATION.—Although the cure of small-pox is not practicable, its prevention is sufficiently easy by vaccination, the origin of which is as follows.—About the beginning of the present century, a dairymaid in the West of England informed Dr. Jenner, that persons becoming inoculated with cow-pox, were not liable to small-pox. Jenner, following up this information, found it true; and the practice of vaccination for the cow-pox rapidly displaced the former system of inoculating people from others suffering under a mild attack of small-pox, in order that they (the inoculated persons) might take the disease mildly also—a result, however, which did not always follow. 'Cow-pock' is a mild local disease, communicable by inoculation from a cow to a human being, and from one human being to another. It is supposed to be in reality, small-pox deprived of its virulence by passing through the system of the cow. It is not contagious through the air. It produces no ill effect, and yet the person who has had it is as much protected against small-pox, as if he had had that disease. If the latter affection is taken after cow-pox, which sometimes happens, it is always mild and modified, scarcely ever leaving any injurious results on the constitution, and is rarely fatal. While the death-rate from small-pox in the London hospitals for a period of fifteen years was 35 per cent., the deaths among those vaccinated, and who had taken small-pox afterwards, was only ·55 per cent. In unvaccinated communities, small-pox attacks 90 per cent. of the population, while among the vaccinated only ·60 per cent. are attacked. In London, before the period of vaccination, every tenth death was due to small-pox, now only one in every eighty-five is caused by this disease. Out of thirty vaccinated nurses employed in the Small-pox Hospital, not one ever contracted the small-pox. All experience and statistics show that vaccination protects the individual, and greatly diminishes the amount of small-pox in the community. Under such circumstances, persons objecting to vaccination must be either grossly ignorant, or must deliberately prefer a loathsome disease and chance of permanently injured constitution, or death. If the children of such persons die from small-pox, the parents are virtually as guilty of their death as though looking on while the children poisoned themselves with arsenic. Stating evil effects have followed vaccination when improperly performed, or when performed from or on diseased children, that small-pox sometimes follows vaccination, that the introduction of a disease artificially, even although so mild as cow-pox, is immoral—stating these and other adverse arguments is simply to assert that vaccination is, like all other human contrivances, not altogether perfect. And it would be at least as rational to decline riding in a railway-carriage, because, when improperly driven, or when material is bad, accidents occur.

Healthy children should be vaccinated as soon as possible —certainly within three months after birth, or prior to the commencement of teething; and when small-pox prevails at a much earlier period. If, however, a child suffers from disordered bowels, or from eruptions of the skin, or is weakly, and there is no small-pox about, it may be desirable to postpone the operation till after most of the teeth have appeared. In India the cold season is the best time for vaccinating, and in some parts of the country the operation cannot be performed with any certainty of success during either the hot weather or rains. Vaccination should be accomplished by taking the lymph from the vesicle of one child on the seventh or eighth day, and inserting it into the arm of another child by three or four pricks or scratches with a lancet, or by using the modification of the cupping scarificator recently designed for the purpose. Care must be taken that no blood is mixed with the lymph taken from the vaccinated child. There is no reason why the arm should be preferred, excepting that it is perhaps a more convenient place than any other part of the body. On the second day a small red spot may be observed at each scratch of the lancet. On the fifth day, there are circular pearly vesicles containing a limpid fluid. On the eighth day these are fully developed, the centre of each being *depressed*, with an inflamed red ring around, of the breadth of from one to three inches. There is probably slight fever, often some swelling of the arm, and sometimes enlargement of the glands in the arm-pits. On the eleventh day the pustules burst, leaving a scab. About the twentieth day the scab falls off, leaving permanent scars or 'pits.' If these symptoms (excepting the enlargement of the glands in the arm-pit) do not present, particularly if the red ring or *areola* is not well developed, the operation is not successful, and confers no protection. Vaccination should be performed at least twice in life, *viz.*, in childhood, and about the age of seventeen.

During the progress of the vaccine pustule great care should be taken lest the child rubs or scratches the part. If this occurs, there may be a troublesome sore, and much redness about the arm-pit, with enlargement of the glands in the arm-pit. Under such circumstances it may be necessary to apply a bread poultice until the sore is clean and healthy, after which simple ointment (Recipe 86) is the best application.

MODIFIED SMALL-POX.—This is the term applied to small-pox occurring, as sometimes happens, after vaccination, or after a previous attack of small-pox. There is generally for three days more or less feverishness, debility, sickness, and headache. Then the eruption shows itself, and the protective value of previous vaccination, or of previous small-pox, becomes evident. In a case of unprotected small-pox, the progress of the eruption is often attended by aggravation of the feverish symptoms; but in modified small-pox, when the eruption shows itself, the patient feels better, and generally begins to recover from that date. The eruption of modified small-pox varies materially from the eruption of unprotected small-pox. The former may consist of a few pimples, or a few vesicles (containing water only) or a few pustules. Often the vesicles dry up about the fifth or sixth day without becoming pustular, a condition which has given rise to the popular terms 'Horn-pock' or 'Wart-pock,' sometimes applied to the malady. The small-pox pustules, on the contrary, pass through a definite course, and, instead of subsiding as pimples or vesicles, always suppurate. Lastly, modified small-pox does not emit that peculiar nauseous odour characteristic of small-pox, and there is no *secondary fever*, or increase of fever on the subsidence of the eruption. Chicken-pox (*vide* p. 82), or 'Crystalline pock,' so called from the bright clear appearance of the eruption (consisting of vesicles containing water), is by many considered to be modified small-pox, but, notwithstanding the similarity of the maladies, this conclusion may be questioned. It is right to add, that modified small-pox is contagious.

Treatment.—The treatment of modified small-pox consists in securing free ventilation round the sick person, who should be isolated as much as possible. Aperient medicines, as Recipes 1, 2, and cooling medicines, as citrate of magnesia (*vide* p. 13), may also be given.

SPITTING OF BLOOD.—Blood proceeding from the mouth may come from very different sources. It may be from the throat or tonsils, in which case the quantity brought up is small, and the bleeding part, probably an ulcer of the tonsils, may be easily seen. This is of little consequence, and requires no particular treatment. Or, blood may come from the gums, as during scurvy, when it should be treated by the remedies proper in that disease. Or, blood may proceed from the socket of a tooth which has been extracted. This variety of bleeding is sometimes very troublesome and profuse, and should be treated as recommended under the heading BLEEDING OR HÆMORRHAGE (p. 365). A much more serious form of spitting of blood is when the fluid comes from the lungs. This form of disease is known as *hæmoptysis*, and is often a symptom of *consumption*. Frothy bright-coloured blood is coughed up, and there may be pain and uneasiness of the chest. In such circumstances perfect quiet is necessary, with cooling acid drinks, and Recipe 58 should be given. This disease, characterised by *coughing up* bright frothy blood, must be distinguished from *hæmatemesis*, or loss of blood from the stomach. This generally occurs in consequence of some ulcer in the coats of the organ eating into a blood-vessel. In all such cases the blood is *vomited, not coughed up*, and its colour is almost black, *not* red. It is generally preceded or accompanied by pain in the stomach, and if the ulcer is large, the loss of blood is often sufficient to cause alarming faintness, for which, however, stimulants must *not* be given. The great point is to keep the stomach at rest, so as to allow the ulcer to heal, or, at least, the ruptured vessel to become plugged up. This will not take place if the stomach is excited to action by food, or if the circulation is excited by stimulants. Ice should be swallowed in little lumps, fluid food, as broth or milk, should be given in spoonfuls at intervals of a few minutes, and alum mixture (Recipe 58) should be administered. In very severe cases *all food* should be given in the way of nutrient enemata by the rectum, thus affording the stomach perfect rest. In cases of either *hæmoptysis* or *hæmatemesis*, medical aid should be sought immediately.

Vomiting of blood is also in some cases dependent on disease of the liver or spleen, and it occasionally occurs when the menstrual flow is scanty or suppressed. Such cases require competent medical advice.

[A better medicine for *hæmoptysis*, or coughing up of bright blood, than the alum mixture mentioned above, is Recipe 60, which should if possible be procured. For vomiting of blood, *hæmatemesis*, Recipe 62.]

SPLEEN DISEASE.—Most diseases of the spleen are generally regarded as due to malaria. When the organ is much affected, there is always enlargement, sometimes so great that the spleen may be both felt and seen filling up, and rendering protuberant, half the cavity of the bowels; thus forming the condition so often seen in Native children, and known as 'pot-bellied.' This state may come on gradually, without any decided pain or tenderness of the organ, or there may be repeated attacks giving such symptoms. When the spleen is congested or inflamed, even before enlargement is evident, there will be pain and tenderness on pressure below the margin of the ribs on the *left* side, and the organ may be frequently felt enlarged by placing the thumb in front towards the stomach, and the fingers behind towards the back on the left side of the body. Pain and tenderness of the spleen frequently occur during attacks of intermittent fever, at which times, more especially during the cold stage of fever, the organ becomes inordinately full of blood, its tissue becomes stretched, and it does not readily resume its normal dimensions. In this state it is easily ruptured.

Disease of the spleen, when established, is always associated with a deficiency of red globules in the blood, and hence the person so affected becomes pallid and sallow, and there is a peculiar pale, tremulous tongue, and the whites of the eyes become pearly or lemon-coloured.

Treatment.—In cases when the spleen has become *suddenly* painful, a few leeches may be required, and one for each year of the patient's age up to twenty-five, will be the proper number. In all cases if there is no diarrhœa, the bowels should be acted upon by the sulphate of soda, quinine and iron (Recipe 3). If there is diarrhœa, the same recipe should be taken without the sulphate of soda. When intermittent fever or ague is present, treatment mentioned under that head must be adopted. When enlargement of the spleen occurs gradually without fever, or without pain and tenderness, tonics, as quinine and iron, are required, and in the absence of other medicines the recipe as above may be taken, with or without the soda salts, as the bowels may require. It should, however, be recollected that in all varieties of spleen disease, a free action on the bowels is generally desirable.

[When obtainable instead of the medicines mentioned above, for acute cases, two scruples of compound jalap powder with five grains of sulphate of iron may be given every morning, and iron and quinine (Recipe 21) three times a day. The part may be painted externally with iodine paint, until the skin becomes too tender for further application. In more chronic cases the ointment of iodide of mercury (Recipe 94) may be rubbed in daily. Small blisters about two inches square, applied over the part, are sometimes useful when the patient is not weak and debilitated.]

Spleen enlargement, however, occurring in Europeans, generally eventually requires change of climate to Europe. Otherwise the enlargement will increase, the person will become much debilitated, and sink into that condition known as 'malarious cachexia.' Dropsical swellings of the legs, and probably in the cavity of the belly, will also result, and, diarrhœa or dysentery coming on, the patient will probably die. Removal to a cold climate will in most instances, if not too long deferred, result in rapid recovery. When European children suffer from enlarged spleens their removal from India is imperatively demanded.

SPLEEN, RUPTURE OF THE.—When the spleen is diseased or enlarged, particularly in Natives, it is excessively tender and friable, and a very slight blow or injury will frequently rupture the organ. Sometimes when in such a condition, the spleen ruptures simply from the force of a fall. When the organ is torn or ruptured, blood escapes into the cavity of the bowels, and the symptoms presenting are those of collapse (*vide* page 370), the person becoming faint, complaining of great pain, and the pulse rapidly growing imperceptible. Such injuries are nearly always quickly fatal, and no medical treatment is of much utility. Perfect rest and the judicious administration of stimulants are indicated; but stimulants must be given with the greatest caution, and only when the pulse can scarcely be felt, otherwise, the excitement of blood circulation they cause will add to the intense bleeding.

SPOTS BEFORE THE EYES, or MUSCÆ VOLITANTES.—*Vide* DISEASES OF THE EYE, p. 150.

STRICTURE.—Stricture, or contraction of any of the natural passages of the body, may occur as the effects of disease or of injury. Thus there may be *stricture of the gullet*, preventing the passage of food into the stomach, and characterised principally by gradually increasing difficulty of swallowing, noticed probably during years, and occasionally aggravated by fits of spasm. There is also pain in the chest and between the shoulders, and if an instrument is passed into the gullet, it meets with an obstruction. *Secondly*, there may be *stricture of the rectum* or lower gut, the symptoms of which are increasing pain, straining, and difficulty in passing the fæces, which are voided in small narrow flattened pieces. There are also cramps and pains in the thighs, frequent desire to make water, and dyspeptic symptoms. Both these forms of stricture require general and surgical treatment, only obtainable under immediate professional superintendence.

But by the term *stricture* in its general sense, is meant that affecting the urethra, or channel by which the urine passes from the body, and of this there are two varieties recognised, namely, *permanent stricture* and *spasmodic stricture.*

Permanent Stricture signifies a contraction of the canal of the urethra in one or more places owing *generally* to thickening or deposit, the result of the inflammation occurring during repeated, or neglected, or badly treated attacks of gonorrhœa; but caused *sometimes* from thickening, the result of injury. The symptoms of stricture of the urethra are, first, a little urine dribbling out after micturition and wetting the clothes, increasing difficulty in making water, a small, forked or twisted stream of water, and that stream diminished in bulk. There is often, also, itching at the end of the penis, and a gleety discharge. But as symptoms much resembling those of stricture may occur from other causes, as stone in the bladder (*vide* p. 56), or enlarged prostate gland (*vide* p. 257), examination by passing an instrument (*vide* p. 349) is sometimes the only certain test. The permanent form of stricture if neglected, is eventually frequently complicated with abscess, terminating in sinuses or fistulæ in the *perinœum*, or fork between the legs. These abscesses generally arise after attacks of spasmodic stricture as described below, when the bladder or urethra behind the stricture gives way, and urine escapes into the surrounding tissue, quickly giving rise to inflammation and abscess.

Treatment.—The treatment consists of both constitutional and mechanical means. Any stomach disorders, or acidity of the urine, must be removed by aperients and antacids, and temperance, rest, and early hours, must be adopted. But the mechanical treatment is of most importance, and consists in the periodical passing of an instrument, only to be performed by an experienced surgeon. When the stricture has been dilated, the passage may be kept open by the patient, who may be instructed how to use a bougie of the proper kind.

Spasmodic Stricture generally occurs to persons who have some slight degree of permanent stricture; or sometimes to those having simply an irritable urethra, probably from gonorrhœa or gleet, without any decided evidence of permanent stricture. The immediate exciting causes of the access of spasm of the part, are indulgence in too much drink, especially of an acid nature, retaining the urine too long, exposure to wet, horse exercise, irritation from piles, or some unnatural condition of urine. The symptoms are now those described under RETENTION OF URINE (p. 442). The patient has a great desire to pass water, and on straining finds himself unable to do so; the bladder becomes distended and appears as an increasing tumour in the lower part of the belly. The suffering is great and the person grows feverish, and if not relieved, the continued efforts at evacuation may terminate in rupture of the bladder or urethra and in *extravasation*, or escape of the urine into the surrounding tissues. When this serious complication results, the patient during a violent effort of straining feels something give way; his painful sense of distension becomes immediately less, and he thinks himself getting well. He probably now also makes a little water, as the stricture relaxes when the pressure behind is removed, and this further adds to his satisfaction. But in a very short time smarting pain occurs about the anus, and in the fork, scrotum, and penis; for the irritating urine has escaped into all these tissues, and the parts mentioned rapidly become red, much swollen and inflamed. Blackish spots and blisters, significant of *mortification*, soon appear, the tongue becomes black, the pulse feeble, and muttering delirium and hiccup precede a fatal termination.

When the escape of urine is not so great, as may occur if the patient is relieved at the critical period, an abscess forms in the fork behind the scrotum. This is known by throbbing pain, tenderness, and swelling, with hot skin and feverishness. Or sometimes an abscess forms without any escape of urine, simply as the result of irritation.

Very frequently a *perinœal* abscess, however it may have formed, results in fistula, through which very often urine finds its way from the bladder.

Treatment.—When spasmodic stricture causes retention of urine, the first thing is to relieve the patient. If the symptoms are not very severe, and if the stoppage of water has succeeded a debauch or exposure to cold, a hot bath, followed by fomentations to the fork, and a full dose, as twelve or fifteen grains, of Dover's powder, will generally afford relief. If the bowels have not been recently opened a full dose, as one ounce, of castor oil, should be taken one hour after the Dover's powder. If these measures do not succeed in the course of three hours, a full dose, as thirty grains, of chloral may be given, and leeches to the number of thirty should be applied behind the scrotum. If urine does not pass, the catheter should be introduced (*vide* p. 349), which, if there is a stricture, may be a very difficult undertaking, and require the aid of a surgeon.

When *extravasation* of urine occurs, a free incision three inches long and one deep, should be made in the middle line of the swollen scrotum, and any other parts either of the scrotum or perinæum, which are swollen and prominent, should also be pricked. Then a poultice should be applied, and a catheter should be introduced into the bladder and retained there, to allow of the escape of urine. The diet should consist of nourishing broths and soups, and stimulants, as wine or brandy, should be freely administered. When abscess forms in the perinæum or fork it should be opened without delay. But the treatment of extravasation of urine, and of abscess from this cause, cannot be conducted satisfactorily except by a surgeon, and they are both conditions urgently requiring skilled aid.

[In addition to the remedies mentioned above for the relief of retention of urine from spasmodic stricture, tincture of iron mixture (Recipe 22) should be procured, one ounce of which should be given every quarter hour. It will also be advisable to give a morphia draught (Recipe 76).]

STYE.—*Vide* DISEASES OF THE EYE, p. 144.

ST. VITUS' DANCE.—This disease, technically termed *Chorea*, generally affects children, and commences with slight convulsive movements of the face or legs. When fully formed there may be convulsive movements of all the limbs. In walking the leg is suddenly thrust to one side, or pulled backwards; or in conveying the hand to the mouth it is, as it were, snatched towards the forehead or shoulder, or above the head. The causes are often intestinal irritation from neglected constipation, or from worms; or it is sometimes associated in young girls with irregularities of the monthly flow. It has also frequently followed frights occurring to weakly children. It may be excited by injuries to the head or spine, or by immoral practices. In other instances it has seemed to be hereditary.

Treatment.—The probable cause of the malady must be first studied. If from worms, they should be expelled (*vide* WORMS, p. 341). If from constipation, this condition must be relieved. If from menstrual irregularity, treatment as mentioned for amenorrhœa or dysmenorrhœa (p. 330) must be pursued. If from debility, tonics are necessary. If from immoral practices, such habits must be abandoned.

SWELLING OF THE LEGS.—Swelling of the legs may occur from a variety of causes. The condition may arise from causes specified under the head DROPSY (p. 124); or from the reasons mentioned under the DISEASES OF PREGNANCY (p. 252); or from disease of the womb (p. 331); or from enlargement of the spleen (p. 294). Lastly, the legs may swell as a consequence of debility, and especially from debility the result of heat. Swelling of the feet is, indeed, very common in India, especially towards night, after the business of the day; but, unless connected with obvious derangement of the general health, this does not need medical treatment.

SUNSTROKE.—There are several forms of this affection, presenting considerable variety of symptoms, but which practically may be classed under the following heads:—

1. HEAT FAINTING, or SYNCOPE.
2. TRUE SUNSTROKE, or COUP DE SOLEIL.
3. SUN FEVER.

The cause of all varieties of sunstroke is high temperature, especially if long continued, either with or without direct exposure to the sun's rays. The liability to sunstroke is increased by fatigue, mental excitement, depression of spirits, living and especially sleeping in crowded barracks, hospitals, or dwellings; by want of ventilation, by want of water, by constipation of the bowels, and by the abuse of alcoholic drinks. Sunstroke is most prevalent in the hottest weather, or on calm sultry days and nights just previous to the rains; also when hot weather commences suddenly after cold, and in those still sultry days when the sun is obscured by a film of clouds or impalpable dust; or when that peculiar electrical state of the atmosphere is more than ordinarily noticeable, in which the hairs of the head stand on end, often emitting sparks when brushed. Under such conditions sunstroke often occurs epidemically.

Premonitory Symptoms of Sunstroke.—Frequently previous to an attack of sunstroke of any description, the person affected by the influences above noted becomes irritable, restless, and complains of headache. He feels dull and listless, and is unable to make much exertion without a great effort. The appetite fails, and a feeling of nausea and constipation of the bowels are often present. An absence of perspiration may also be noticed, and there may be more frequent desire than usual to make water. Such premonitory symptoms may prevail for several hours or for several days previous to the fully developed attack, or they may not occur at all; or, occurring, may pass away.

When anything of the kind is noticed in persons exposed to a high range of temperature, immediate measures should be taken to prevent the initiatory symptoms passing into the fully developed form of the disease. Every means possible should be used to secure ventilation and movement of air, shade and coolness should be sought, cold water should be plentifully drunk, and the body should be well sponged with water, or a bath should be taken. A purgative (as Recipes 1 and 2) will generally be desirable, and citrate of magnesia draughts (*vide* p. 13) should be given every two hours.

1. Heat Fainting, or Syncope.—Either after the foregoing premonitory symptoms, or without such deviations from health having been observed, *heat fainting*, or *syncope*, commences with feelings of faintness, sickness, giddiness, confusion of ideas, confusion of vision, loquacity, hysterical fits of laughing or crying, shivering, cold extremities, frequent desire to make water, and sometimes drowsiness.

The face is pale, the surface of the body is cold, and often bathed in perspiration. The respiration is of a sighing or gasping character, the action of the heart and the beat of the pulse are weak, sometimes intermittent, the pupils of the eyes are contracted, and there may be more or less decided insensibility.

2. TRUE SUNSTROKE, OR COUP DE SOLEIL.—True sunstroke may be preceded for a variable time by the premonitory symptoms as above detailed. Or it may commence as heat fainting, or syncope, which condition, after a few minutes, or perhaps a few hours, passes into another state, characterised by *flushing of the face, heat of body and head, bloodshot eyes, strong quick pulse, stertorous snoring or puffing breathing (marking the brain most affected), or noisy, laboured, and incomplete breathing (marking the lungs most affected). In a very short period insensibility ensues, and sometimes convulsions. Or thirdly, *coup de soleil* may occur suddenly, without either premonitory symptoms or the fainty feelings of heat syncope. In such cases the person falls down as suddenly as if struck with apoplexy, and the symptoms are as above described (*commencing at flushing* of the face*). To some varieties of the malady, the terms *Heat Apoplexy*, *Heat Asphyxia*, or *Heat Suffocation*, have been applied.

In the above details it may be noticed that the principal difference in the symptoms of the two chief forms of sunstroke are, *first*, in the appearance of the face; *secondly*, in the pulse; *thirdly*, in the respiration or breathing of the patient. In heat fainting the countenance is pale and the surface of the body, particularly the hands and feet, feel cold; in true sunstroke, or *coup de soleil*, the face is flushed, and the surface warm or hot. In the first-mentioned form of the affection the pulse is weak and often intermittent; in the second form it is strong and quick. In heat fainting there is sighing, irregular or gasping respiration; in true sunstroke the breathing is regular, snoring, puffing, or stertorous.

SUN FEVER.—This, often also called Ardent Fever, is simply a high degree of feverishness, and has already been described under the head of FEVER (*vide* p. 154).

It should however be known that exposure to the sun will often induce a less degree of feverishness than that to which the term 'Sun or Ardent Fever' has been applied, being a condition resembling the state mentioned as Ephemeral Fever (*vide* p. 154). For this affection, rest and quiet only are, as a rule, necessary.

Treatment.—In treating sunstroke, the peculiar form in which the disease attacks should be recognised. In the first form, when the patient is faint, sick, giddy, shivering, cold, it will generally be advisable to lay the person on his back in the shade, to rub the limbs, and to give a stimulant in the shape of wine or brandy and water. But the case must be treated with caution, on account of the tendency of the malady to run on to that condition marked by flushed face, heat of skin, blood-shot eyes, and quick, strong pulse. When such symptoms are observed, stimulants should be withheld, cold water should be poured on the head, punkahs should be used to cool the surrounding atmosphere, and if the patient can swallow, a quick purgative, as one ounce of sulphate of soda in three ounces of water, should be given. Recipe 105 should also be used as an injection. The extremities should be rubbed, mustard poultices or turpentine stupe should be applied to the nape of the neck, and if insensibility and puffing breathing ensue, the injection should be repeated, and twenty leeches may be applied either at the back of the neck, or at the roots of the hair above the temples.

When the symptoms point to lung affection, known by the irregular, noisy, laboured and incomplete breathing, but neither sighing nor stertorous or puffing, in addition to cold affusion, quick purging, and friction to the extremities, a large mustard poultice should be applied to the chest. If doubt is felt as to which is most affected, the head or the chest, or if, as often occurs, both are affected, mustard poultices or turpentine should be placed both on the back of the neck and on the chest (*vida* Recipe 108).

In all varieties of sunstroke the patient should be encouraged to drink plentifully of cold water, to supply the place of the evaporation of fluid constantly taking place from the skin.

All forms of sunstroke are to be regarded as most dangerous. They are frequently followed by periodical headaches, by fever, by neuralgic affections, by dysentery, and sometimes by paralysis. They sometimes leave permanent cerebral injury, which may terminate in insanity. Moreover, often when recovery seems complete, the person is ever afterwards unable to bear any exposure to the sun, and is thus unfitted for active life in the tropics.

The means of prevention of sunstroke are, avoidance of exposure; artificial cooling and ventilation of dwellings; wearing a proper head-dress and turban ; protecting the spine from the sun by padding in the coat over that part; wetting the head-dress with water when obliged to go out in the sun; and temperate living (*vide* Chap. IV. p. 511).

[As noted above, in the great majority of cases of sunstroke, quick purging is most desirable. Therefore, if obtainable, two drops of croton oil mixed in a little sugar should be given instead of the sulphate of soda. If the patient cannot swallow the croton oil and sugar, it should be placed, by means of a feather, on the back of the tongue.]

SYCOSIS, or CHIN WELK.—*Vide* SKIN DISEASES, p. 283.

SYPHILIS.—*Vide* VENEREAL DISEASE, p. 322.

TEETHING, or DENTITION.—Teething, being simply a natural process of development and growth, ought not in a healthy child, born of healthy parents, and carefully suckled and reared, to be attended with difficulty. It is, however, a period of transition from one mode of being to another, in

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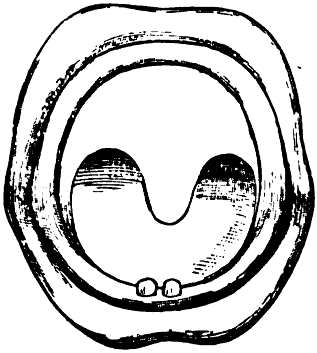

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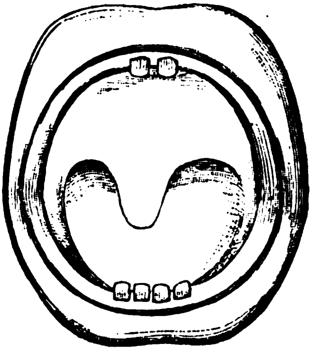
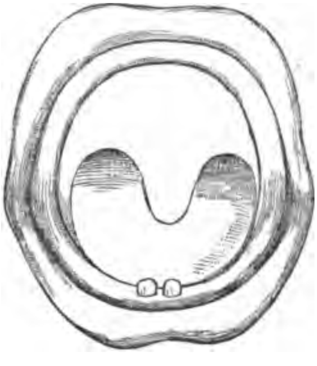
the two lower lateral incisors about the eight or ninth month;

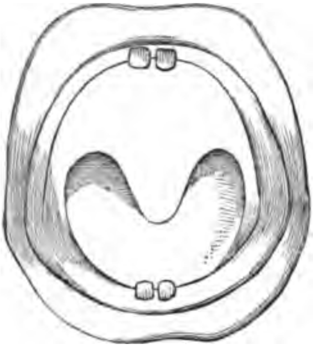


respect to certain all-important functions, by the performance of which the body is nourished, and this excitement of the system, although from a natural process, renders many children liable to be affected by causes which would not at a different period produce any injurious results. Thus, so many children, especially in this country, are improperly fed, or are naturally deficient in strength, or are the children of parents more or less debilitated by a prolonged residence in the tropics, that the process of teething is frequently accompanied by suffering and danger. The intimate connections which exist between the nerves supplying the stomach (*pneumogastric*), the nerves supplying the teeth pulp (*the fifth pair*, or *trifacial*), and the nerves supplying the general system (*the sympathetic*), are so extensive and numerous that functional interference with one set or any part of one series is liable to act upon the others. Hence the frequent association of stomach or bowel complaints, of fever, of skin diseases, and of other derangements, with the cutting of the teeth.

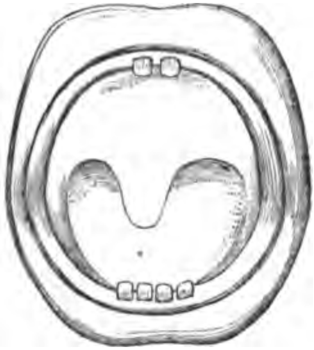
When the teeth appear naturally, and the child is otherwise in good health, they emerge from the gums somewhat in the following order. The two lower central incisors penetrate the gums between the sixth and seventh months;



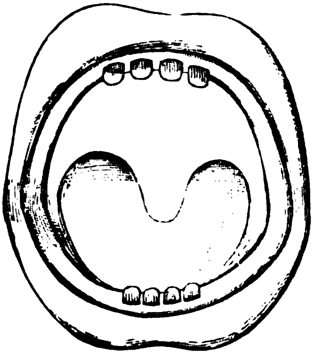
the corresponding upper central incisors in from three weeks or a month afterwards;



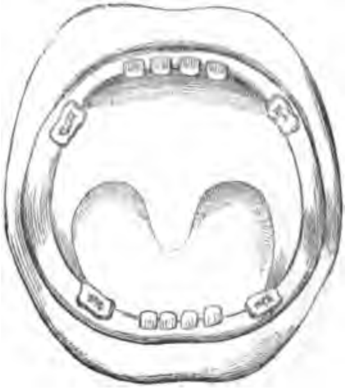
the two lower lateral incisors about the eight or ninth month;



the two upper[1] lateral incisors generally soon or a month afterwards.



The anterior molars of the under jaw make their appearance between the twelfth and fourteenth month, those of the upper jaw following shortly afterwards.



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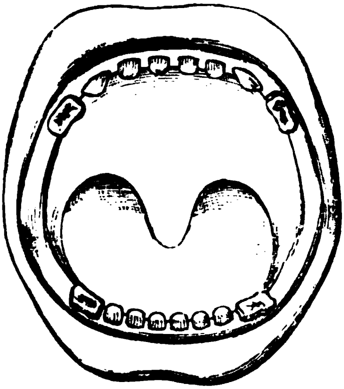
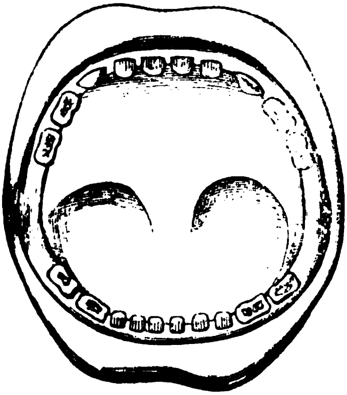
[1] The upper lateral incisors often, if not indeed generally, precede the lower ones.

The canine or eye teeth are cut between the sixteenth and twentieth months.



Last of all, the second molars are cut between the twentieth and thirtieth or thirty-sixth months.



Thus the first dentition, or the cutting of the twenty temporary or 'milk teeth,' as they are called, is completed as a general rule at the age of two years and a half to three years.

Most people will, doubtless, remember feeling much pain when the wisdom teeth appeared, and children, probably, often experience the same kind of annoyance. This, however, is not always the case, for sometimes it is discovered an infant has cut a tooth who had yet shown no signs of discomfort, nor, probably, any indication, excepting an increased flow of saliva, that dentition had commenced. But more frequently the mouth becomes hot, and the gums look tense, tumid, and shining, while the position of each tooth is marked some time before its appearance by an increased prominence of the gum. If the process of teething is going on naturally, and there are no symptoms beyond a little feverishness, dribbling from the mouth, or occasional diarrhœa, no interference, medicinal or otherwise, is necessary or proper. Preventing the dribbling from the child's mouth saturating the clothing and producing cold is all that is required. The special liability of infants to illness at such period should, however, be borne in mind; and care should be taken not to make any alteration in the infant's food while it is actually cutting the teeth, but rather, if change of diet be necessary, to take the opportunity afforded by one of those pauses in the process of dentition to which reference has been made above. Should the child at any time grow suddenly hot and feverish, or wake screaming at night, a simple cooling medicine, as citrate of magnesia (*vide* p. 13), may be given every two hours, while the bowels, if confined, should be moved by castor oil. An ivory or india-rubber *ring*—the best shape, as it cannot be thrust into the eye—may always be given to the child to suck with advantage. The pressure against the gums, particularly of the india-rubber substance, is agreeable to the child, and, moreover, the friction and pressure tend to increase the rapidity with which the gum above the rising tooth is absorbed. The practice, however, of giving sweet things to children to suck during teething must be condemned, as the *barley sugar*, or other material sometimes used for this purpose, being swallowed, frequently turns acid in the child's stomach and disorders the bowels. If a tooth is near the surface, known by the prominent shining, and sometimes white appearance of the gum, and if the piercing of the gum by the tooth seems unduly delayed, and the child is feverish or otherwise suffering, the gum may be lanced according to the instructions given at p. 319. But the gum lancet should seldom be used unless there is evident irritation or prominence of a gum, or when it appears the gum will certainly burst in a day or two. Under such circumstances, lancing the gum will spare the infant much suffering. In a smaller number of cases it may be necessary to lance a red and swollen gum when the tooth is not so near—as when a child has convulsions, or is attacked with other serious ailment. But this is done to scarify and relieve the turgid gums, *not* to divide them down to the tooth. The objection sometimes adduced against thus lancing the gums, namely, that the resulting cicatrix renders the part hard, and the tooth therefore passes through with more difficulty, is not tenable. For the cicatrix of the gum, like *all* newly-formed structures, is most easily absorbed.

It not unfrequently happens that children suffer from many of the symptoms of teething when the gums afford little or no evidence of the approach of the teeth to the surface. The mouth may be hot; there may be restlessness, flushings of the face, heat of hands and surface generally, with loss of appetite, and perhaps vomiting and diarrhœa. But the gums show little sign of *localised* irritation, and the condition is therefore often attributed to some other cause. This state occurs during the intervals between the appearance of the teeth, or during what is vulgarly called 'the breeding of the teeth' in the gums. It arises from the pressure made far below the surface of the gums by the increasing and growing teeth, which have not yet risen sufficiently to render the skin of the gums tense and prominent. In such cases lancing would be wrong, unless convulsions or other serious ailment should occur. A preparation, consisting of sixty grains of bicarbonate of soda, well mixed with one ounce of honey, should be rubbed on the gums two or three times daily, and cooling medicine, as citrate of magnesia (*vide* p. 13), should be given. Remedies for diarrhœa, or for constipation, or for flatulence (*vide* pp. 117, 95, 183), as such conditions may prevail, should also be prescribed.

It should be recollected that during the process of teething there is a demand in the system for certain mineral matters of which the principal is lime, which plays a considerable part in the construction of the teeth. Therefore, when teething is difficult, or when the maladies mentioned below supervene, a little lime water may be given. Lime water is made by placing one ounce of quicklime in two quarts of pure cold water, letting it stand a few hours, and then pouring off the clear fluid. As cold water only dissolves a minute proportion of lime, the solution will not be too strong, even if the exact proportions are not used. A few spoonfuls of this fluid may be mixed daily with the milk or other food of the child. Or if the chemical preparation called 'phosphate of lime' is procurable, a couple of grains may by preference be given with each meal, instead of the watery solution of lime.

The principal maladies occurring during or excited by teething are: 1. *Various forms of skin disease.* 2. *Thrush*, or *Aphthæ.* 3. *Flatulence.* 4. *Vomiting.* 5. *Diarrhœa.* 6. *Bronchitis*, or *Pneumonia.* 7. *Convulsions.*

1. VARIOUS FORMS OF SKIN DISEASES.—Almost any variety of skin disease may occur during dentition. Most frequently skin affections at such times take the form of 'breakings out' about the ears, or of ringworm on the scalp; or of 'rose rash,' or *erythema*, or of *pompholix* or watery blisters

or 'blebs' on the limbs or body; or the glands underneath the chin may swell or even suppurate. It frequently happens that, in spite of any treatment, these skin affections persist during the whole period of teething, then getting well spontaneously.

The skin affections of children appearing during dentition are seldom dangerous, and rarely need much medical treatment. They frequently serve as a relief to the system, and if they are suddenly and imprudently checked, disease of some important internal organ may manifest itself. It is generally better to abstain altogether from any external medicinal applications. The parts affected should be kept perfectly clean by washing frequently with glycerine soap, after which a little cold cream or simple ointment may be applied. Maintaining the bowels freely open by senna, or by castor oil, or by citrate of magnesia, or by Gregory's powder, together with the careful regulation of the food; are the best means of curing these eruptions. They are often increased by acidity of the stomach, and are then much benefited by two or three grains of bicarbonate of soda, or magnesia, given daily. Sulphur, magnesia, and cream of tartar, of each from two to five grains, according to age, given every morning, is a very useful remedy. If there is debility or feverishness, a grain of quinine may be added with advantage.

Rose rash, roseola, or red gum, and erythema, all skin affections occurring during teething, are described under SKIN DISEASES, p. 272.

2. THRUSH, OR APHTHÆ.—*Vide* p. 320.

3. FLATULENCE.—*Vide* p. 183.

4. VOMITING.—Vomiting occurring to children during teething is very common, and may be connected with skin maladies, or with diarrhœa, or may occur unassociated with other ailments. It may either depend on indigestible food, or on too frequent feeding, or it may altogether arise from that intimate communication between the different nerves

supplying the teeth and stomach, as before noticed (p. 304), and by which the irritation arising in one part is conveyed to, and reacts on, another part of the body. Vomiting, therefore, is to be mitigated or relieved by attention to the food, giving particular care to the cleanliness of the utensils used, if the child is taking other sustenance than human milk, by relieving constipation or diarrhœa by appropriate remedies, and by lancing the gums if they present the appearances described as indicating the use of the instrument (*vide* p. 309).

5. DIARRHŒA.—Diarrhœa has been described under the term INFANTILE DIARRHŒA, at p. 117.

6. BRONCHITIS AND PNEUMONIA.—These maladies sometimes come on in children during teething, although they are not so frequent in India as in cold climates. During teething bronchitis is often associated with diarrhœa, and the early symptoms, consisting of cough and feverishness, may be regarded as sympathetic irritation of the air-passages, resulting from the process of teething, when in reality they are the first signs of a dangerous malady. Therefore cough, or wheezing of the breathing, occurring during teething, must be looked upon with suspicion, as the possible commencement of a serious ailment; and if the symptoms persist, the remedies proper for bronchitis or inflammation of the lungs must be used (*vide* pp. 74, 232).

7. CONVULSIONS.—The convulsions of children are treated of at p. 100.

TEETH, SECOND or PERMANENT SET.—It will be useful here to note the manner in which the second set of teeth appear. The advance of the permanent or second set of teeth towards the surface of the gum causes the absorption of the roots of the temporary or milk teeth, and thus facilitates their shedding, the crowns falling off and leaving room for the permanent teeth behind them, to come forward and supply their places.

In the replacement of the first by the second set of teeth, the following order is observed. The front teeth (middle incisors) are first shed and renewed usually when the child is about eight years of age; and then, probably a year later, the side teeth (lateral incisors). The anterior double teeth (molars) are replaced about the eleventh year, and a few months afterwards the posterior double teeth (molars) of the first set give place to others. The permanent eye teeth (canine) also appear towards the end of the twelfth year, these being the last of the milk teeth exchanged. Two other double teeth (molars) rise between twelve and a half and fourteen years of age. The third double teeth (molars), or *dentes sapientiæ*, wisdom teeth, seldom appear until three or four years subsequently, and often much later. The number of the second set of teeth when complete is therefore thirty-two.

TEETH, WISDOM, CUTTING OF THE.—This is often attended with pain, perhaps protracted for months. The difficulty generally arises from the teeth appearing so close to the curvature or angle of the lower jaw that the mucous membrane of the mouth, where passing from the cheek to the jaw, is caught by the rising wisdom tooth, and nipped every time the mouth is closed. Ulceration is thus produced, and a troublesome sore may result. Sometimes there is stiffness and spasmodic action of the jaw in consequence. The best treatment is to nip away, with a sharp pair of scissors, any projecting or overhanging fold of membrane, so that the teeth may not press upon any part of the texture of the mouth when the jaws are closed. The ulcer will then soon heal, particularly if touched occasionally with a camel-hair pencil charged with strong alum water, or with vinegar.

TETTER.—*Vide* Skin Diseases, p. 279.

TETANUS.—Tetanus consists of violent spasms or convulsive movements of the limbs, and frequently of the whole body. The disease often commences with stiffness of the jaws, which in the course of a few hours or days become firmly closed, constituting 'Lock-jaw.' In some instances the disease does not proceed further, and the patient may recover; but in other cases spasms of the limbs supervene, by which the patient may be bent like a bow, resting on his heels and the back of his head. The spasmodic movements recur every few minutes, but during the interval the muscles remain hard, and do not thoroughly relax unless the patient sleeps. The patient may die from suffocation in consequence of the spasms fixing the muscles of the chest and preventing breathing, or he may die from exhaustion. The malady is nearly always fatal.

The causes of tetanus are not well understood. It sometimes follows exposure to cold, and it often follows wounds or injuries; but it would seem some peculiar irritable condition of the constitution must be present when tetanus occurs from such causes.

Tetanus may be mistaken for hydrophobia, and *vice versâ*. But in hydrophobia there is generally *fear of water* as a distinctive and prominent symptom; in tetanus there is no such fear. In hydrophobia there is constant 'hawking' and spitting, in tetanus none. In hydrophobia there is complete relaxation of the muscles after any convulsive seizure; in tetanus the limbs remain more or less hard and rigid between the convulsive struggles. Lastly, there is generally the history or mark of a dog bite in the one case, and not in the other.

Hysterical convulsions have been sometimes mistaken for tetanus; but a reference to the description of hysteria, and a comparison with the symptoms of tetanus, will at once show the difference.

Treatment.—The treatment of tetanus is very uncertain, medicines appearing to do good in one case proving fruitless in another. Chloroform and chlorodyne, or chloral, to relieve pain and spasm, supporting the strength of the patient with good soups and stimulants (to give which a tooth must often be removed), are the principal requirements. If ice is procurable, it may be pounded, put in a bag or cloth, and applied over the spine.

[If the above remedies do not appear to relieve the pain and spasm, five drops of chloroform with twenty minims of tincture of opium may be given in an ounce of water; this not seeming efficacious, morphia (Recipe 76) may be used; that medicine being repeated every four hours, which appears most soothing.]

TIC DOULOUREUX.—*Vide* NEURALGIA, p. 239.

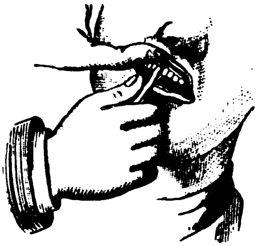
TOOTHACHE.—Toothache is generally caused by irritation or inflammation of the nerve in the interior of the tooth. Decay of the tooth until the nerve is exposed is the most frequent cause, and such cases require either stopping or extraction. But toothache is sometimes neuralgic, and then sound teeth are attacked. This condition will probably require purgative medicine, followed by quinine.

A large number of nostrums are sold, as applications to the teeth and gums, as cures for toothache. But there is no such specific cure. When there is a large hollow, and pain is severe, the best application is a mixture of camphor and opium, of each one grain, made into a paste, with which the hollow tooth should be filled: the cavity having been previously dried by means of lint or cotton wool. Or a few drops of any of the following may be applied on a small roll of lint: creosote, chloroform, laudanum, spirits of camphor, oil of peppermint, oil of cajeput, or oil of cloves. Cotton wool placed in the ear, or cotton wool wet with chloroform placed in the ear, often gives relief. So does strong snuff, or a very small quantity of black pepper snuffed up the nostril. A mixture of ten grains of alum, dissolved in half a drachm of chloroform, may be applied to the tooth by means of lint or cotton wool. Collodion is also a good application. The cavity in the tooth is first to be carefully dried by means of a little lint, or the collodion will not adhere. One or two drops are then introduced, which, while liquid, exactly fill the cavity. As the ether contained in the collodion evaporates, the pain is assuaged, and a protective layer of collodion is formed in the hollow. A mixture of creosote three parts, and collodion two parts, forms a kind of jelly. Placed in the tooth it dries, and forms a hard mass, which protects the decaying parts from the air, and thus relieves the pain. A hollow tooth may also be often kept easy by filling it with bees' wax. Nitrate of silver scraped to a point and applied to the interior of the tooth will, if well managed, be sure to afford relief. Liniments, as Recipes 89, 90, applied externally, are also often useful. But if a tooth is too far gone to be stopped, and is the site of periodical pain, the only certain relief is extraction.

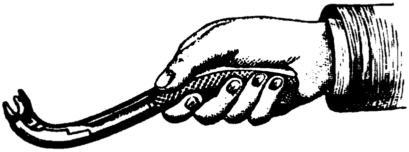
TOOTH DRAWING.—To be able to draw a tooth moderately well, would often prove a useful knowledge. By a few plain directions, supplemented by practising on a skull, sufficient dexterity may be acquired to admit of the amateur often relieving servants or others, suffering from the horrid pain of tooth-ache: a class of sufferers who are indeed often glad to incur some risk, rather than endure the continuance of the pain.

The front and eye teeth may be best pulled out with straight forceps. The gum should be first separated from the neck of the tooth, by passing a gum lancet to the extent of less than a quarter of an inch between the gum and the tooth. Then the blades of the forceps are to be placed, one before and one behind the tooth, and the ends made to clip just where the tooth dips into the gum. The right hand then grasps the handles of the forceps, while the fore-finger is at the same time thrust in between the handles, thus preventing too great pressure being made, by which the tooth might be snapped off. If it be an upper tooth, the operator may steady the patient's head, by getting it beneath his left arm, and then pulling down, giving the tooth a twist at the

same time, by which it is soon drawn, if the pull be steadily made. If it be a lower tooth, the operator steadies the head in the same way, but with the thumb of his left hand on the sound teeth, presses the jaw down, whilst his right hand pulls up, twisting as he pulls the tooth. The mode of extracting from the upper jaw is here shown.



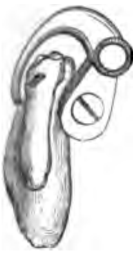
Drawing a back tooth is a more difficult matter, and is effected with forceps of different shapes, the claws being turned downwards, instead of being straight; as shown in the following diagram of the forceps clasping an extracted molar, or back tooth. The forceps must be applied round the neck of the tooth, as described for the front teeth. The forceps should be grasped firmly, the tooth moved from side to side with a twisting motion, and then pulled straight out. In extracting teeth with the forceps, three things should be kept in view: *first*, to prevent the forceps pressing too heavily round the neck of the tooth, by which it is liable to be broken: *secondly*, to loosen the tooth by a twisting or lateral motion; *thirdly*, to pull it straight out. But the pull should not be made with too great violence, or suddenness, otherwise the tooth escaping from the socket suddenly, the forceps may hit against and perhaps break other teeth.

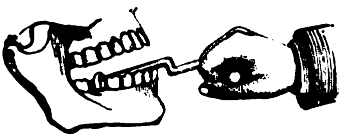


In some cases it may be desirable to draw the back teeth with the 'key;' as when they are much decayed, and cannot bear the pressure of the forceps; or, when the crown of the

cavity. As the ether contained or the claws of the
the pain is assuaged, and a ething like a boot-hook.
formed in the hollow. A key has a deep solid lip,
collodion two parts, for d on the top of this moves a
tooth it dries, and fo curved iron claw which, when
decaying parts from the instrument is twisted, acts
hollow tooth may fully and drags the tooth out of its
bees' wax. Nit Previous to operating, the bolster
to the interior should be covered with a little lint, to prevent
afford relief injury by the necessary pressure on the gum.
ternally, a If an upper back tooth has to be drawn, the
gone to operator will see best, and have more power
only ce by seating the patient on the floor, throwing
T his head well back and fixing it between his own knees. If
rate it be a lower tooth, the patient should be placed in a chair, an
fe assistant should hold the lower jaw with both hands, standing
s behind the patient, while the operator stands in front.

The key should now be introduced into the mouth, with the claw thrown back. The bolster, protected by the lint, should be placed against the gum of the tooth to be pulled out, while the claw is turned across the top of the tooth. When it falls it should catch the tooth just below the body where the gum joins it, and to render this easy the gum should be previously slightly detached from the tooth by the gum lancet. Then the operator should steady the claw with the fore-finger of the left hand, and grasping the handle of the instrument, as he would a cork-screw when about to pull out a cork, he should twist it from without inwards. The claw then acts as a lever, the fulcrum of which is the bolster, and the tooth is lifted out of the socket. Care must be





taken in fixing the claw that the right tooth is seized, and also that the claw does not slip on to the next, by which accident a serviceable tooth may be drawn, and the troublesome one left behind. But by steadying the claw with the finger of the other hand, the accident can scarcely occur.

Lancing the Gums of Children.—This is very easily managed, and any intelligent person seeing it done once or twice may do it very effectually. The operation may be performed with a gum lancet (*vide* p. 348), the edge of which must be placed vertically on the top of the inflamed gum, and moved along, pressing firmly at the same time, till the edge of the instrument grates on the tooth.

TONGUE, ULCERS OF THE.—These have already been mentioned under the head of Salivation, but they sometimes occur as the result either of debility or dyspepsia, without accompanying salivation. The best application readily obtainable, is a concentrated solution of alum (powdered alum three drachms, water one ounce), applied several times daily with a feather or brush. Ulcers in other parts of the mouth may be treated in a similar manner. Accompanying debility or dyspepsia should of course receive appropriate treatment.

[*Dilute* sulphuric acid applied with a feather to the ulcer, will be found a better remedy than alum. It causes acute pain for a few moments, but the ulcers are much less sore afterwards, and heal more quickly.]

THROAT, INFLAMMATION OF THE.—This may be mild or severe. When moderate, it constitutes a common sore throat; when severe, it constitutes 'quinsy.' In the latter case the tonsils are inflamed and swollen, and often either ulcerate or 'gather.' When 'gathering' or suppuration occurs there is great difficulty in breathing until the abscess breaks or is lanced. Mild cases of sore throat are sufficiently met by a mustard poultice applied externally, and an occasional aperient (Recipes 1 and 2). Ulcerated sore throat often requires touching with concentrated alum solutions (powdered alum three drachms, water one ounce). When the tonsils suppurate they should be lanced as soon as possible. But this is an operation requiring the skilled hand and knowledge of a surgeon.

[Nitrate of silver solution, of the strength of ten grains of the salt to an ounce of distilled water, may be used in preference to the alum solution mentioned above.]

Dangerous forms of inflammation of the throat are mentioned as occurring in *Scarlet Fever* and *Diphtheria.* Sore throat is also a symptom of venereal disease. Sore throat, from over-exertion of the voice, is treated of under the head Loss of Voice (*vide* pp. 263, 120, 322, 227).

THRUSH, or APHTHÆ.—This is a disease generally affecting children. It commences with peevishness, feverishness, and often disordered bowels. It consists of an eruption on the tongue, lips, cheek, and gums, of small white vesicles, which discharge a whitish mucus, and which are believed to consist of microscopical vegetable parasitic growths. This mucus adheres for some days, and, then falling off, discloses small ulcers. As a general rule, thrush or *aphthæ* is not a dangerous disease, but it sometimes spreads into the throat, inducing difficulty of breathing and of swallowing, and occasionally, in very weakly children, *gangrene* or mortification of some part of the mouth may result. The causes are debility, improper food, sour milk, impure air, and irritation from teething, and the treatment should be directed to the removal of such excitants. The secretion in the mouth should be removed by frequently, but gently washing the mouth with a piece of lint, firmly fixed on a stick of whalebone, and moistened with hot water. Afterwards alum, or if obtainable borax of soda one drachm, mixed with honey four drachms, should be applied in similar manner to the ulcers.

Sometimes an appearance resembling thrush is found at the outlet of the bowels, when the thrush is popularly said to have 'passed through.' The parts should be washed with Recipe 97.

[If this does not succeed, Recipe 55 should be procured and used as a lotion.]

TUBERCLES.—*Vide* SKIN DISEASES, p. 284.

TUMOURS.—The term 'tumour' is applied to almost any swelling, and does not, as is popularly supposed, signify any particular disease. There are therefore very many kinds of tumours, some of which are mentioned under the maladies of which they form parts. The term *aneurism* is applied to a pulsating tumour resulting from the rupture of an artery.

ULCERS.—Ulcers are raw open sores, generally hollowed out lower than the surrounding surface, which may result from any inflammation of the surface of the body, as, for instance, from boils, or from injuries. Ulcers of a peculiar kind are caused by scrofula, venereal disease, and scurvy (*vide* pp. 267, 322, 270). Chronic ulcers of the legs are common in elderly people, and are frequently caused in the first instance by varicose veins (*vide* p. 252). Ulcers require different treatment according to their cause or condition. The most universally suitable application is water dressing (Recipe 85). When in doubt, this will always be the safest application.

URINE, BLOODY.—Bloody urine results from various causes. Blood in the urine turns that fluid a dark-brown colour, and if the blood is in large quantity a dark-brown deposit falls. When bloody urine occurs, the first question is the source from which it results. It may happen as a consequence of congestion of the kidneys, and will then be preceded by a feeling of pain or weight in the loins. It may be a sequence of inflammation of the kidney or *nephritis* (*vide* p. 216), and as such may occur after scarlet fever. It may be caused by irritation of the kidneys from taking turpentine or Spanish fly. It may arise from injuries of the kidneys (*vide* p. 427). It may be caused by the passage of a stone from the kidney to the bladder (*vide* GRAVEL, p. 190), or from STONE IN THE BLADDER (p. 56), or from a diseased state of the mucous membrane of the bladder (*vide* INFLAMMATION OF THE BLADDER, p. 55). The treatment therefore must depend upon the cause.

URINE, DISEASED CONDITIONS OF.—Other diseased conditions of the urine most generally met with are: 1. *Saccharine Urine* (*vide* DIABETES, p. 113); 2. *Albumen in the Urine* (*vide* BRIGHT'S DISEASE, p. 71); 3. *Mucus in the Urine* (*vide* INFLAMMATION OF THE BLADDER, p. 55); 4. *Gravel* (*vide* p. 190); 5. *Bile* (*vide* JAUNDICE, p. 214).

URTICARIA, or NETTLE RASH.—*Vide* SKIN DISEASES, p. 273.

VENEREAL DISEASE, or SYPHILIS.—This disease is the consequence of contagion, and appears first on some part of the genitals in the shape of a small red pimple, which about the fourth day becomes a watery vesicle with an inflamed base. Then a little matter forms, and discharging, leaves an open sore or ulcer, with a hard margin, elevated edges, and depressed centre. In some cases the parts are less hard and elevated, and the sore more resembles an ordinary ulcer from other causes. Next, about fifteen to thirty days after the commencement of the sore, or after the sore has healed, there may be swelling or tenderness of the glands in the groin, eventually forming a tumour about the size of an egg, or in some cases as large as an orange, called *bubo*. This is extremely painful and tender. If this swelling occurs, it may either subside or proceed to the formation of matter, which then points like an ordinary abscess. This concludes the symptoms of *primary syphilis*.

But the person so affected is not free from the disease. Weeks or months afterwards *secondary symptoms* may occur, and in the majority of cases the sequence is much as follows. The person grows dispirited, is probably troubled with rheumatic pains, particularly in the shin bones, and complains of loss of appetite and want of sleep. Then either skin diseases, or sore throat, or both affections, appear. The mildest variety of the latter is simple redness, or soreness, but very often there are peculiar-looking ulcerations, to which, as they appear undermined and hollow, the term 'excavated' has been applied. The patient has a peculiar guttural way of speaking, and may complain of pain in the ears. Next, or at the same time as the sore throat, appear eruptions of the skin, of various descriptions. A reference to DISEASES OF THE SKIN will show that the principal forms are rashes, vesicular eruptions, pustules, scaly eruptions, and tubercles. Each and all of these may occur as secondary symptoms of syphilis, presenting the variations of ordinary skin disease, but differing in one important distinctive characteristic, *viz.*, that they all have a coppery hue, which non-syphilitic skin affections do not present to the same degree. Perhaps the most common venereal skin affection is a pustular eruption, which eventually becomes scaly, very much as *psoriasis*, or 'tetter,' has already been described. Sometimes the scales, falling off, leave foul ulcers, which are long in healing, and from which a permanent mark or scar often results. But these are not the only results of secondary syphilis. It not unfrequently also attacks the internal nostrils, producing a nasty foul discharge, and it may even ultimately destroy the bones of the nose. Or it may attack the bones of the head, or the shin bones, the surfaces of which swell, become very painful, and form what is termed *nodes*. These *nodes* sometimes gather, burst, and leave deep foul ulcers, at the bottom of which is *carious*, or diseased bone. The windpipe may also be implicated, producing huskiness or even loss of voice, which defect may become permanent. Lastly, internal organs, as the brain or liver, may also become diseased, giving rise to various anomalous symptoms, only to be recognised by the experienced practitioner.

But even this is not the end of venereal disease. Women frequently miscarry as a result of syphilitic poison in the system. Children born of diseased parents are often affected from birth. They are, in fact, born diseased. When a child is born syphilitic, it is weakly and shrivelled, with hoarse cry, snuffling respiration, discharge from the nostrils, copper-coloured blotches on the skin, especially about the privates. In other cases such symptoms appear a month or so after birth. If the child of syphilitic parents escapes such maladies in infancy, when growing up the individual is much more likely to become consumptive or scrofulous than others not so tainted.

Treatment.—If a sore occurs, and the means mentioned in the small type below are not at hand, the parts should be kept perfectly clean, an alum lotion (Recipe 97) should be applied, and the patient should be kept as quiet as possible, taking some aperient medicine, as Recipes 1 and 2. Then if the sore is not a true syphilitic chancre it will get well, and if it is, the best method under the circumstances will have been pursued. If, however, a sore occurs presenting the characteristics mentioned in the first lines of this article, *viz.*, commencing as a pimple, and passing on to an open sore, with hard margin and elevated edges, the patient should, although he may suffer little pain, seek the advice of a medical man as soon as possible.

[The proper treatment of venereal disease is as follows. If the pimple on the genitals is observed *before* it becomes a sore, or *chancre*, it will be advisable to destroy it by the careful but thorough application of nitrate of silver. Then the part should be treated with water dressing (Recipe 85), and rest and low diet should be enjoined, If, however, the ulcer or *chancre* has formed without this being done, black-wash lotion (Recipe 88) should be applied with lint, and blue pill should be given, in three-grain doses, three times a day, until there is a metallic taste in the mouth, or the gums become slightly sore. If the blue pill acts on the bowels, one quarter of a grain of extract of opium should be combined with each dose. Meanwhile the patient should live regularly, but not too low; the clothing should be warm, and but little exercise should be taken. If, notwithstanding these precautions, swelling and pains in the groin indicate the formation of bubo, the patient should be kept on the couch, and *all* exercise avoided, and the painful part should be frequently fomented. Under such treatment the abscess may not form; but if throbbing pain comes on, indicating the formation of matter, poultices should be applied. When pointing occurs the bubo should be lanced in the direction of the folds of the skin, and afterwards treated as a common abscess, care being taken, by gently squeezing out the matter and by padding, to prevent the formation of *sinus*, or burrowing under the skin.

When *secondary* symptoms occur, the most satisfactory remedy is iodide of potassium in five or eight grain doses. But the Protean varieties of secondary syphilis, and the difficulties of treatment involved, demand the advice of an experienced surgeon, scarcely any two patients requiring exactly similar remedies.]

VOMITING.—Vomiting is an inverted action of the stomach, accompanied by nausea and faintness. It is an ordinary symptom of disorders of the stomach and bowels, as cough marks affection of the chest. It occurs from colic, diarrhœa, indigestion, from *hernia* or rupture, from inflammation of the bowels, from cholera, from disease of the liver, from gravel, and from passing gall stones. In women it is often caused by hysteria and by pregnancy. It is frequently a symptom of the onset of fevers. The treatment of vomiting is therefore the treatment of the maladies of which it forms a symptom.

WARTS.—Warts are growths from the skin, often occurring without any assignable cause. Frequently if left alone they gradually disappear. When warts grow with a thin stalk or neck, a piece of strong waxed thread may be tied tightly round the narrow part. After a day or two the wart will fall off, and the part should be afterwards daily touched with pure alum.

[Pure acetic or nitric acid carefully applied every day to a wart will destroy it. The acid may be applied with a stick of cedar wood, and care must be taken that it does not touch the healthy skin, or it will act

as a caustic and destroy that also. The use of the acid may be continued daily, so long as no pain follows the application. A less powerful application is tincture of iron used in a similar manner.]

WETTING THE BED BY CHILDREN.—This is a troublesome complaint to which children are most liable. It sometimes occurs from mere idleness and indisposition to get out of bed; it often depends on irritability of the bladder; sometimes on the presence of a stone. In cases where there is no stone or assignable cause, the child should be made to empty the bladder immediately before going to bed, and he should be provided with a little vessel which, if required, may be taken into the bed. If the practice be persisted in, either idly or unconsciously, the child should be roused in the middle of the night for the purpose of emptying the bladder. The preparation called benzoic acid has been much recommended, and may be obtained and tried in one-grain doses. Or a blister about the size of a crown piece applied on the very bottom of the spine immediately above the cleft of the buttocks may be tried. The child should also be induced to lie on the sides and not on the back, in which latter position any urine in the bladder presses on the most sensitive part of that organ, and induces desire to make water. It is seldom desirable to punish a child addicted to this habit, although, if old enough, he may be admonished firmly yet kindly.

It may be here mentioned that the inability of holding the urine occurring to children is sometimes connected with an irritable condition of the nervous system, causing the child to wake frightened and screaming, probably after some disagreeable dream. Although such a habit may exist as a consequence of teething or worms (when it requires the treatment proper for such affections), it appears to be often excited by the wet feeling of the urine when passed into the bed. In such case; the cure of the wetting of the bed will stop the habit of awaking in a fright. In other instances, when no cause of the latter habit is apparent, bromide of potassium in two or three grain doses may be given with great advantage.

When, as sometimes happens, similar inability to hold the water occurs to *adults*, and if there is no evident disease explaining the defect, chloral hydrate given at night in fifteen or twenty grain doses will prove an effectual remedy. As the malady grows less, the dose of chloral must be diminished until the patient is able to do without it.

WHITLOW.—There are several kinds of whitlows. The more common and slightest form occurs generally on one side of the root of the nail, beginning with a little inflammation and throbbing. By degrees a whitish semi-transparent bladder is formed, extending more or less round the nail. If not opened the fluid separates the scarf skin from the true skin underneath, till it finds some crack or thin part in the former, through which it bursts, discharging the watery matter, when the finger may get well. But if the matter has been pent up for some days it frequently ulcerates the true skin, and a little red body sprouts up through the opening in the scarf skin, which is excessively tender, and is vulgarly called 'proud flesh.' If this increases the nail may be destroyed.

Treatment.—The blister should be snipped with scissors, and a bread poultice applied, followed in a day or two by simple dressing. If red proud flesh forms, the dead scarf skin should be removed, and alum should be lightly applied to the part, which should then be bound up with simple ointment.

The Second Form of Whitlow occurs in the bulbous ends of the fingers. This is much more severe, and the matter is deeper seated beneath the true skin. No blister forms, but the finger swells and is red, afterwards becoming white as the matter approaches the surface. The pain often extends into the hand and arm.

Treatment.—The finger should be deeply lanced in the direction of its length, and a poultice applied. When matter ceases to flow, or in a day or two, the part should be plastered.

The Third Form of Whitlow is the most severe. In this case the sheath containing the tendons of the finger inflames, the finger swells, and unless quickly attended to, the inflammation spreads into the hand, and the tendons, or one or more bones of the finger are injured or destroyed.

Treatment.—Leeches, bathing the part in hot water, and poulticing should be used. The inflamed part should also be lanced *to the bone* early, within twenty or thirty hours from the beginning of the attack. Afterwards poultices should be applied till the flow of matter ceases, and then plasters.

WHITES.—This signifies an increased secretion of mucus from the female private parts. The discharge is generally of a white or faintly yellow colour, and may amount to several ounces daily. Sometimes it assumes a glairy appearance, more like white of egg. The appetite is impaired, the bowels generally constipated; there are often palpitations, giddiness, fainting, or neuralgic pains, with flatulence, pain in the back or in the left side, pallor, and hysterical symptoms. The causes are difficult menstruation, chronic inflammation of the womb, frequent child-bearing, want of exercise, luxurious living, and other causes of general debility. The treatment consists in attention to the general health, to diet, and to the state of the bowels, in regular hours, proper exercise, and change of air. Cold bathing, or at least pouring cold water down the spine, is also advisable. To arrest the discharge an alum lotion may be used, composed of thirty grains of alum in eight ounces of water. Infusion of green tea is also a good injection, and may be made by pouring a pint of boiling water on half an ounce of green tea, macerating, straining, and using the injection cold. A female syringe should be employed, and when using the syringe the pátient should lie with the hips raised on a pillow, in which position the injection flows well over all the affected parts.

[Recipe 107 may be used if the alum lotion is not beneficial.]

WHITE SWELLING.—This is a peculiar affection of the joints, generally of the knee, occurring mostly in scrofulous children, and which has obtained the name of 'white swelling,' because although the joint may be considerably enlarged, and the parts inside much diseased, the skin retains a white colour, and gives little indication of the inflammation underneath. It is generally attributed to some injury, as a fall or sprain, but the real secret of the malady is constitutional, and the injury can only be regarded as an exciting or determining cause of a constitutional taint showing itself in a particular part of the body. In white swelling, the pain and enlargement are at first trifling, causing merely stiffness of the joint, and uneasiness only when moving or attempting to use it; so that the disease often makes considerable progress before it is recognised. Afterwards the pain is greater, and generally worse at night, but it is never so severe as in various other affections of the joint. Stiffness or swelling or tenderness of the knee or hip joints, or 'limping,' occurring to children, should lead to immediate application for medical advice. In the meantime it should be recollected that a diseased joint requires absolute rest, although fresh air should be afforded to the patient. The diet should be light but nourishing.

WOMB, DISEASES OF THE.—Many causes combine in inducing a great tendency to womb disease in the European female in India—some certainly preventible, others less so, inasmuch as the latter consist of climatic influences. The preventible causes are excitement and fatigue consequent on a journey to the tropics, perhaps before the monthly courses have become properly established. Sea sickness also plays its part, the action of vomiting, equally with the mental emotion resulting from excitement, being sufficient in some constitutions to delay the approach of, or to induce before its period, what should be the regular periodical monthly flow. In addition there may be frequent exposure to chilling winds or damp, neglect of suitable clothing, the fatigue of long journeys or marches, and lastly too early marriage. All these are powerful agents, often acting injuriously on the organ.

One of the first effects of tropical climates on the system of the European, is a greater flow or fulness of blood in the liver and other abdominal organs, in which condition the womb partakes. Then, after a time, the woman probably suffers from attacks of diarrhœa, from dysentery, from piles, from intermittent fever, or she bears children too quickly, or she miscarries. All these are causes tending to irritate and weaken the womb. Superadded to all this is exposure, neglect of suitable clothing, errors in diet leading to abdominal irritation, the imprudent use of the cold bath, chills from the cold from tatties, too frequent or violent equestrian exercise, the lassitude and *ennui* engendered by great heat of climate, and the neglect of a sufficient amount of suitable exercise.

The most common maladies which arise from these various causes affecting the womb are connected with the monthly discharges, which may be either scanty and delayed, or excessive and frequent. The delay of the flow is technically spoken of as *Amenorrhœa,* and it may occur without any actual diseased condition of the womb, simply as a functional disorder. This occurring in young girls is different, as regards cause, from the irregularities of the monthly flow in older persons who have been some time in India. When these latter deviations from health take place they are almost always connected with painful menstruation, called *Dysmenorrhœa*; or with excessive menstruation, called *Menorrhagia.*

AMENORRHŒA, or *Suspended Flow*, or *Failure of the Monthly Courses.*—The monthly affection of women commences about the age of fifteen, and ceases about forty-five. In the Natives of India it generally commences and ceases a couple of years earlier. It may be suspended or fail under the following circumstances:—1st, it is not present as a general rule during pregnancy or suckling ; 2ndly, instead of appearing at the usual age, it may be retained or delayed; 3rdly, the menses may be secreted for a time, and their recurrence prevented; 4thly, the non-appearance of the discharge may depend on some mechanical obstruction, or on disease of the mouth of the womb, or of the womb; 5thly, it may be concomitant with 'change of life.'

1st, when the cause of the failure of the monthly course is pregnancy, there will be other symptoms of such condition, and of course nothing is required to be done to reproduce the flow.

2ndly, when, instead of appearing at the usual age, the discharge is delayed, the girl will probably be pale and flabby in appearance, she will be weakly and debilitated, the bosoms will be little developed, and there may also be dropsical swellings of the legs, arms, or face. Periodical pains in the back and loins, irregular recurring headaches, white discharges, palpitations of the heart after slight exertion or on any agitation of mind, capricious appetite leading the patient to eat such articles as chalk or cinders, and irritability of temper are also usually noted. The complexion becomes sallow, dark, or greenish, the condition of the patient soon becoming that described as *anæmia* or 'green sickness' (*vide* p. 42). Under such circumstances tonics are of the greatest service, especially those preparations which contain iron; and in the absence of other medicines, three or four grains of sulphate of iron (the *hera-kusees* of the bazaars) may be given in an ounce of water three times a day. Moderate exercise in the open air, especially on horseback, but without tiring the patient; a generous but wholesome diet with a little wine or porter; cheerful society without excitement or late hours; the avoidance of close rooms, and cold bathing during the intervals between the monthly periods, will do much good. Change of scene by unfatiguing travel, and sea bathing, are also often beneficial. The bowels should be regulated by aperients, as Recipes 1 and 3. Such medicines, together with hot foot or hip baths, should always be taken a day or two before the expected period, at which time cold baths should not be used, and all kinds of excitement should be more carefully avoided. When pain of back or loins indicates that nature is making an effort, and the hot baths are not successful, a mustard poultice may be applied over the lower part of the bowels for two or three nights in succession.

[For the condition above described as amenorrhœa, Recipe 15 should be procured for use previous to the expected period instead of Recipe 1; and Recipe 22 for use during the interval.]

The above indicates the line of treatment to be adopted when amenorrhœa occurs in pale weakly girls, but sometimes the menses are tardy in appearing, the patient being plethoric and robust in constitution, and the bosoms and form well developed. In such cases there will probably be pain of the back and loins, flushing of the face, giddiness and headache, at each period. Before this comes on the patient should take Recipes 1 and 2 for two or three nights and mornings in succession, and a mustard poultice should be applied to the lower part of the bowels. If these measures do not succeed, three or four leeches should be applied to each groin, the bleeding from which should be encouraged by fomenting with a sponge pressed out of hot water. These means should be repeated every four weeks until the menses do appear; and after this occurs, a warm bath should be taken at night at the approach of each period, for some time afterwards. The food of such patients should be very light, principally farinaceous; and alcoholic drinks, as ale, porter, wine, should be avoided. Exercise both on foot and horseback may be freely taken.

Emmenagogue medicines or drugs, as savin, which excite the flow of the menses, are best dispensed with, excepting under the advice of a medical man. Some of these agents may prove very dangerous, and when administered by quacks, or well-meaning but ignorant friends, have often done much injury to the constitution. Suspended flow, as mentioned above, may usually be overcome without the use of such medicines.

3rdly, *the menses may have been secreted for a time and their recurrence prevented.* The discharge at an early period, often does not recur regularly at the end of every four weeks. The constitution seems to require the influence of habit, and for some time slighter causes will induce suppression. Damp feet, sitting on damp ground, standing in a draught, fatigue, passion, excitement of any kind, or fright, will often suddenly check the discharge if present, or otherwise prevent its reappearance. When the discharge is thus suddenly checked or prevented, there is usually headache, lassitude, and probably pains in the lower part of the bowels. If from any causes there is repeated failure of the monthly flow, the constitutional condition becomes the same as, or even worse than, the state occasioned by the non-appearance of the flow at the usual time of life. (*vide* p. 331).

The prevention of the menses may also be caused by the debilitating effects of other diseases, such as consumption, Bright's disease, and some forms of hæmorrhage. But such stoppages are less abrupt, and are not followed by the peculiar effects above detailed; while there are the symptoms of the other disease which may be present, which will serve to point out the cause of the retention of the menses.

Treatment.—When the stoppage of the monthly flow occurs as a consequence of other debilitating diseases, no special treatment directed to excite the flow will be desirable. But when the stoppage occurs to otherwise healthy women, the following measures may be adopted. Females of full habit require to be reduced by means that deplete or lower the circulation; and, on the contrary, delicate patients must be invigorated by means which improve the state of the blood and give tone to the system. If sudden suppression or stoppage of the menses occur after they have been established, a warm bath at 100° Fahr. is equally suitable for every constitution; and if taken immediately after exposure to cold or other cause of obstruction, it would often prove successful. In other respects the treatment detailed for delicate or plethoric persons under the second heading may be adopted (*vide* pp. 331, 332).

4thly, the non-appearance of the discharge may depend on some mechanical obstruction, or on disease of the mouth of the womb, or of the womb. Obstruction chiefly occurs in young girls; disease to older women. The means directed to be used in the foregoing remarks having failed, after a fair trial, to produce the desired effect, no delicacy of feeling on the part of the patient or her friends should prevent application to a medical man, in order that it may be ascertained if any anatomical obstruction is in the way, or if any disease or result of disease exists. If such is the case, medicine may increase the evil, and delay will increase the difficulties of the case.

5thly, stoppage of the monthly courses from 'change of life' is considered under that heading (p. 340).

DYSMENORRHŒA, or *Painful Menstruation.*—This is even more common in India than the former condition, and is generally symptomatic of some congestion or other abnormal action about the womb. The symptoms are pain in the loins, or in the bowels just above the groins, preceding the monthly period by a few hours, or sometimes days, tenderness over the lower part of the bowels, darting pains in the bowels coming on in paroxysms, sometimes vomiting, diarrhœa, and pain in making water. Nervous and hysterical symptoms are often also present, and the pain sometimes assumes a neuralgic character, returning at intervals. These symptoms may disappear on the flow of the discharge, or they may be continued with the passage of clots of blood, or membranous shreds, until the discharge ceases.

The treatment consists in attention to the general health, in maintaining the bowels moderately open, in avoiding all exposure to damp and chill, or excitement of any kind previous to the expected period. When the pain is present, fomentations should be applied to the lower part of the bowels, and chlorodyne in thirty-minim doses may be given. If nervous or hysterical symptoms are present, a stimulant, as wine, or brandy and water, or in severe cases Recipe 67, will always prove beneficial. A warm bath at the commencement of the attack seldom fails to give relief. After leaving the bath, the patient, being well dried, should go to bed, and keep up the soothing effects of the bath by the application of flannels wrung out of hot water over the lower part of the bowels and privates. When the pain assumes a neuralgic character, returning daily, or twice daily, quinine (Recipe 17) will be required. During the intervals the general health must be attended to, and constipation avoided. Exercise short of fatigue should be taken, and the patient may walk, or drive out in a carriage, but horse exercise is improper. Late hours should be avoided, and a generous but wholesome diet should be adopted.

[Recipe 25 should be obtained for use during the intervals, with or without the sulphate of soda, according as the bowels require aperient medicines or not.]

MENORRHAGIA, or *Excessive Menstruation.*—This is when the flow returns with unusual frequency, or continues longer than ordinary, or is more abundant than natural at the proper period. The flow should naturally occur once in every twenty-eight days: the average time of its continuance is three days, and the amount of fluid lost is about four ounces. There are exceptions to these general rules, but usually when such conditions are interfered with something wrong will have occurred. Menorrhagia, or excessive, too frequent, or too long-continued menstruation, may be the result of two quite opposite states of the system, viz., *plethora* in some instances, and *debility* in others. An immoderate flow arising from plethora is usually preceded by shivering, pains in the head and loins, flushed countenance, and febrile symptoms. An immoderate flow from debility, which is most usually met with in India, is attended by paleness, languor, feeble pulse, frequent fainty feelings, neuralgic pains, depression of spirits, flatulence, and disordered bowels, with dull aching pain in the back, loins, and thighs. Excessive menstruation is very likely to occur to women who have suffered much from over-nursing (*vide* page 560) or from frequent pregnancy, and sometimes when a doubt of pregnancy exists it may be difficult to distinguish this affection from abortion (*vide* MISCARRIAGE, p. 255).

Treatment.—In all cases of profuse menstruation, rest in the horizontal posture is indispensable, together with perfect quietness; and in severe cases cold local applications, such as cold wet cloths laid over the lower part of the bowels and between the thighs. If the patient is of plethoric habit, indicated by a florid countenance and considerable muscular development, the diet should be low and consisting chiefly of milk and light puddings, the drink being a little weak claret and water, or lime juice and water flavoured with sugar. If the patient suffering from profuse menstruation be of a delicate constitution, indicated by pallid countenance and deficiency of muscular development, the treatment should be somewhat different, and a more liberal diet with a little sherry or port wine may be allowed. Quinine, as Recipe 17, should also be taken. The liver in all such cases is generally inactive, and the bowels are often costive. Constipation must be removed, but purgatives containing aloes are not to be used; sulphate of soda for plethoric persons, and castor-oil for more weakly persons, proving more satisfactory. Provided that movement does not cause renewed bleeding, the patient should as soon as possible get into the open air, taking at first only carriage exercise, and not walking at all.

[If the immoderate discharge arises from a plethoric state, in addition to low diet and purgatives recommended above, Recipe 4 should be procured and taken. When symptoms of debility are present, tonics, as quinine and iron (Recipe 21), should be given. Iron not only promotes the monthly discharges when deficient, but also, by giving tone to the system, and secondarily to the womb, controls an immoderate flow. In severe cases astringent medicines combined with sedatives (Recipe 61 or 63) should be used; the latter being the more powerful. In still more violent cases it may be necessary to use injections of ice-cold water to stay the bleeding; or if this does not suffice, astringent injections, as Recipe 98.]

WOMB, INFLAMMATION OF THE.—Inflammation of the womb may occur in connection with disorders of menstruation, or without such prior conditions. The malady sometimes commences by a rigor or shivering fit, followed by quick pulse and fever. There is always pain, increased by pressure, over the lower part of the bowels, pain about the loins and thighs, difficulty and frequency in making water which is hot and scalds, a sense of weight or 'bearing down,' swelling of the abdomen, more or less fever, and often nausea and vomiting.

The causes of inflammation of the womb are cold, particularly cold taken soon after confinement, blows or falls, menstrual irregularities, sometimes the use of too strong injections, frequent sexual intercourse, injuries during childbirth, too much exercise on horseback, or too long standing, walking, dancing, or exposure to cold when the menses are present.

The *treatment* consists of leeches over the tender part of the belly, followed by fomentations; or in less severe cases counter-irritation by mustard poultices or blisters. Saline medicines, as citrate of magnesia, should also be used, and the bowels should be opened by castor-oil. Unless there is diarrhœa, which sometimes accompanies, oil should always be given, as hardened fæces in the lower bowel may press against the womb, and thus mechanically irritate that organ. The diet should be chiefly fluid, and the drink toast and water, or rice water. Absolute rest in bed is indispensable, as walking, standing, or even sitting in the erect position is injurious, and has often caused a relapse during convalescence. If neglected, inflammation of the womb may terminate in suppuration somewhere in the neighbourhood of the organ, which will be very injurious to the constitution of the patient. This may be suspected if a recurrence of shivering takes place during the existence of pain and tenderness as above described. In such a case it will be well for the patient to take a warm bath at 100° Fahr., this temperature being kept up for half an hour or longer, until faintness supervenes, as the best means of checking the inflammation. After the bath, the patient being well dried, should be covered by an additional blanket, take ten grains of Dover's powder, and two hours afterwards drink freely of toast-water to excite perspiration. The bowels should also be again opened by another dose of oil. Perfect rest, attention to diet, and maintaining the bowels freely moved every day, are the main points to be afterwards attended to; but the opinion of a surgeon should be sought.

WOMB, CHRONIC INFLAMMATION OR CONGESTION OF THE.—This is a minor degree of the acute form described above. It may come on gradually, or it may remain after the acute form has subsided. There is more or less pain or tenderness about the lower part of the bowels, with the discharge called 'whites,' a sense of 'bearing down,' pain in the loins, and painful monthly periods. If long continuing, this condition may lead to a great number of structural alterations about the womb, such as enlargement, displacement, suppuration in the neighbourhood, or ulceration of the mouth. When this condition of chronic congestion occurs, the person should paint the lower part of the bowels with iodine paint daily, or as often as can be borne, or small blisters may be repeatedly applied. The recumbent posture should be maintained for several hours daily; tendency to constipation should be watched for and relieved; piles, if present, should be appropriately treated; cold hip-baths should be taken, or cold water should be poured down the spine daily. At the same time tonics, as iron and quinine, and generous diet will generally be required. In this, as in all affections of the womb, horse exercise should be forbidden.

[In all cases as above, it will be desirable to procure and use the iodide of potassium mixture (Recipe 45).]

WOMB, DISPLACEMENT OR FALLING OF THE.—This consists essentially of a falling down of the womb below its natural position. It is most frequent in women who have borne large families, or who have got up too soon after confinements, but is not confined to this class. It may occur in the first instance suddenly after exertion, as lifting heavy weights, or from retention of urine (*vide* p. 254), or it may come on gradually from local weakness of the ligaments of the womb, or from weakness of the general system. It happens in every degree, from very slight falling to the protrusion of the womb itself externally. The symptoms are feelings of weight and bearing-down pains, with a sensation of fulness of the belly. There is often also constipation and frequent desire to make water, or in some cases inability to do so, caused by pressure on the bladder. The symptoms are more or less severe as the organ is more or less displaced. The digestive organs are generally influenced injuriously by falling of the womb, and this reacting on the nervous system produces a depressed and impaired state of general health.

Treatment.—This varies with the degree of displacement. In the less severe cases, medicines should be administered with the view of strengthening the system generally (Recipes 17 or 18). Prolonged rest in the horizontal posture should be enforced, and about a pint of cold water should be injected night and morning, the patient being in the recumbent position at the time. If this treatment is insufficient, injections of other kinds, as mentioned under the head 'Whites,' should be tried. If the falling of the womb is considerable, it may require replacement by the hand. When falling of the *womb* has once occurred, it is liable to return, and abdominal belts or other instruments may be necessary to retain the part in position.

CHANGE OF LIFE.—It has been already stated (*vide* AMENORRHŒA) that the monthly discharge of females commences about the fifteenth year, terminating about the forty-fifth. It is to the period of cessation of this periodical flow that the term *change of life* has been applied. This period is popularly supposed to be a time fraught with danger to the female, and there is doubtless often considerable suffering at such times, and in some women a more than ordinary liability to various ailments. Other women, on the contrary, pass through this period of their life without any sensible derangement of health; the monthly flow gradually becoming more scanty until it ceases altogether. Other females may, when about forty-two or forty-three years of age, begin to suffer from periodical fainting fits, from palpitations of the heart, from swelled legs, from swelling of the bowels, from nervous headaches, from flushings, or from night perspirations, from pain in the breasts or in the left side, from eruptions, from bleeding at the nose, or from bleeding piles. The temper, formerly the reverse, may become irritable, and the disposition may appear temporarily changed. Then the monthly flow may either be scanty, or it may not appear for several months, and then it may return in considerable quantity. There may, in fact, be either of the conditions described as *Amenorrhœa*, as *Dysmenorrhœa*, or *Menorrhagia* present. The course to adopt under such circumstances is to treat the various symptoms as they arise, and as detailed under the headings named. Care should be taken to keep the bowels regular, more especially when women of plethoric habit are the patients, in order to guard against any tendency to 'fits' or other maladies sometimes supervening.

WORMS.—There are three common varieties of worms infesting the human intestines, viz. *Tape-worms*, white, flat, jointed and long, sometimes attaining the length of twenty feet; *Round Worms*, resembling a common earth-worm in shape, but white in colour; *Thread-worms*, very much like little bits of cotton, and about a quarter of an inch long.

As a rule *tape*-worms are most common in adults, and *round* worms in children; *thread* or *maw worms* may occur in either children or adults; the variety of worms present can only be *positively* ascertained by actual observation, the symptoms arising from either class being often so very similar. The stools should be carefully washed and examined daily, when either joints of the tape-worm, or a round worm, or maw-worms, will eventually be discovered if the unhealthy state arises from such parasites. It should be a rule not to give any of the medicines mentioned for worms, until their presence has been actually ascertained by such inspection of the stools.

TAPE-WORM.—This worm lives in either the large or small intestines, sometimes stretching throughout their whole length. Its length is therefore sometimes very great, varying from six to twenty feet or more. It is a flat, ribbon-like worm, of a white colour, one-third of an inch broad, and composed of segments about an inch long, each segment fitting into the preceding one. Towards the head the worm tapers very much, and the segments are shorter. The head is triangular in shape, about the size of a pin's head, and is further known by four black spots upon it, which are in reality the suckers by which the worm clings to the coats of the bowels. The worm increases in length by fresh segments, developed at the neck, while the fully formed segments at the tail drop off, and pass away with the stools. Each piece thus expelled contains numerous eggs, which it has been proved may be taken into the stomach of animals, and develope into 'hydatids' in their flesh. The hydatids or ova, again eaten by man, may become tape-worms.

The cause, therefore, of tape-worm, or at least one of the causes of tape-worm, is the habit of eating very underdone meat. The hydatid, or ovum, sometimes found in meat, when received into the human system, developes into the tape-worm. It has, however, been ascertained that fair cooking destroys the vitality of any such ovum which the meat may contain, although it may escape destruction when the meat is only half cooked.

The symptoms commonly present are uneasiness in the bowels, sometimes amounting to pain of a biting or gnawing character. There is frequently irregularity of the action of the bowels, straining at stool, fœtid breath, furred tongue, and variable appetite. There is also itching at the nose and fundament. The patient grinds his teeth when asleep, and children often awake frightened and screaming. There is frequently headache and giddiness, dry cough, palpitation, and, in women, hysterical symptoms. Pieces of the worm are occasionally passed with the stools, and are the most certain proof of the existence of the parasite. In young children, worms are sometimes accompanied by swelling and hardness of the bowels, and they may become the exciting cause of convulsions, of infantile remittent fever, and of St. Vitus' dance.

Treatment.—All kinds of tape-worm are best treated by some specific remedy which experience has sanctioned, as mentioned below, and which must be procured from the chemist. If this cannot be done, the following plan, which is sometimes very successful, may be adopted for either variety of worms. Take of fresh pomegranate root bark, sliced, two ounces; water two pints. Boil down to one pint, and strain. Two fluid ounces should be taken fasting, and a similar dose should be repeated every half-hour, until six draughts have been taken. Vomiting or nausea may occur after the first dose, but this should not prevent repetition. Then, if the bowels are not freely acted upon, a dose of castor-oil should be used. The worm will probably pass away with the motions thus produced.

[For tape-worm in adults, the principal and most certain remedies, are spirits of turpentine, kousso, and oil of male fern. The dose of turpentine is half an ounce for an adult, with a tablespoonful of castor-oil; of kousso half an ounce, steeped in warm water, should be taken; of oil of male fern half a drachm in a tablespoonful of castor-oil. Either of these should be taken on an empty stomach, early in the morning, and should be followed three or four hours afterwards by a tablespoonful of castor-oil. This treatment should be repeated twice or thrice a week, until the head of the worm is passed, which may be known by its triangular shape. Unless the head of the worm is passed, the worm again grows, and the old symptoms return. For tape-worm in children, the best treatment is to give a dose of castor-oil the first thing in the morning, and to allow nothing but liquid food during the day. In the evening another dose of oil should be administered. The effect of this treatment, is to uncover and expose the worms to the action of the drug employed for their expulsion, which may be santonin given in two-grain doses three times during the next day. While taking the santonin only liquid food should be allowed. Lozenges containing various quantities of santonin can be procured from the chemists, and may be taken instead of the santonin as recommended above.

It should be mentioned, that santonin should be kept in a bottle protected from the light by being pasted over with brown paper, as exposure to light deteriorates the medicine. It should also be known that very peculiar effects have sometimes followed taking santonin. The urine may acquire a reddish tinge, giving rise to suspicion of the presence of blood in that fluid. Or, secondly, vision may become affected, every object appearing for a few hours yellow or green. These effects pass off without leaving permanent ill result.

The reason of success or failure of these remedies depends much on the manner of taking them: if they reach the worm they will kill it, if not, of course they fail. If constipation prevails, the bowels should be first cleared by purgatives, as Recipes 1 and 2, and then the worm medicines should be taken fasting. It is advised that if one remedy fails, the others should be taken in the order noted.]

ROUND WORMS.—These worms may exist in any part of the intestines, and even in the stomach. In shape they much resemble the common earth-worm, and are of a pale pink or white colour. There may be one worm or several. The symptoms they produce are very similar to those of tape-worm. There will be tumid belly, griping or biting pains, irritation of the nose, irregular appetite and action of the bowels, nausea, disturbed sleep and vague feelings of distress. The most certain proof of the existence of round worms is the sight of one passed with the stools.

Treatment.—In the absence of the remedies mentioned below, the treatment by decoction of pomegranate root bark, as detailed for tape-worm, may be pursued.

[But if obtainable give for an adult five grains of santonin powder at bed-time, the same quantity early next morning, and a tablespoonful of castor-oil one hour afterwards. This failing, turpentine may be used, as for tape-worm, or purgative pills, composed of six grains of calomel and five of compound extract of colocynth. The dose of santonin for a child of two years old is two grains, of spirits of turpentine ten or twelve drops, of castor-oil a small teaspoonful. The santonin may be given as directed for tape-worm.

If medicines repeated two or three times as above do not succeed, a dose of castor-oil should be given the first thing in the morning for two days, and nothing but liquid food allowed during the days. In the evening another dose of oil should be administered. The effect of this treatment is to starve the worms, while uncovering them, and exposing them to the action of the drug afterwards given for their expulsion, which may be santonin or turpentine, as above mentioned.]

THREAD-WORMS.—Thread-worms, also called *maw-worms*, almost invariably infest the lower part of the bowels near the fundament, where they create much itching and irritation; they are not only passed with the fæces, but crawl out during the night on the clothes, or into the bed, in large numbers; they also excite mucous or bloody stools, with more or less disturbance of the general health.

Treatment.—Thread-worms are best expelled by injecting the lower gut daily with twenty grains of quinine dissolved in eight ounces of luke-warm water, or with a tablespoonful of common salt in eight ounces of water; castor-oil may also be given, which will expel numbers. Children should be given a dose of castor-oil in the evening, and an enema containing six or eight grains of quinine, or a teaspoonful of salt, the next day after the action of the oil has ceased. (For the method of administering enemas to children, and the quantity to be injected, *vide* p. 97.)

As a general rule it is not advisable to give specific remedies, as santonin or turpentine, for thread-worms, which inhabit the lower part of the intestines, and which, therefore, are not so much exposed to the action of remedies given by the mouth as other kinds of worms, having their habitation in the upper portion of the bowels.

[If the injections mentioned above are not quite successful, an enema of infusion of quassia, to be obtained from the chemist, may be used. This not destroying the worms, an enema composed of two drachms of tincture of the sesquichloride of iron in six ounces of water, may be employed. If these measures fail, turpentine given by the mouth should be tried.]

WORMS IN THE NOSE.—The affection generally described as worms in the nose, or *Peenash,* is in reality maggots in the nose. It is a malady almost entirely confined to the lower class of dirty Natives. A fly enters the nostrils and deposits larvæ or eggs within, which eventually become maggots. If any disease causing discharge from the nostrils exists, the flies are attracted, and are most likely to effect entrance. Anyone may daily notice flies clustering about the eyes and nostrils of dirty Natives, particularly children, the latter taking little trouble to rid themselves of the nuisance. At such times, or during sleep or weakness from disease, the flies enter the passage, and maggots in the nose is the result. Sometimes one or two maggots are passed daily, at others several dozens may be passed or extracted. In feeble persons they sometimes consume not only the interior of the nostrils, but even eat their way through the skin of the nose and into the mouth. A good application is lime water (Recipe 41), injected by means of a syringe. When visible, the maggots should be extracted with a pair of forceps.

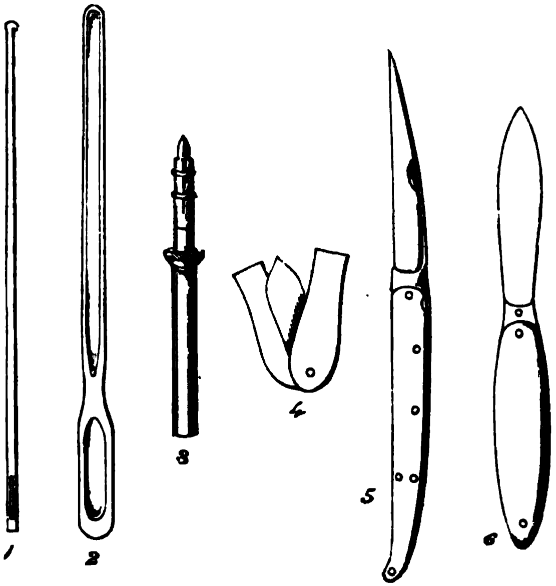
[But better injections are 'black wash' and carbolic acid lotion (one part of acid to fifty parts of water), which may be obtained and used alternately several times daily.]

YELLOW GUM.—This is the term popularly given to the jaundice which not unfrequently occurs to infants two or three days after birth. The child's skin is of a yellow colour, the urine is very dark, staining the clothes yellow, and the stools are white. It is not a serious disorder, and is probably due to the liver being engorged, from the lungs not acting properly at first. As a general rule no medicine is required, the first milk secreted by the mother being sufficient to open the bowels of the infant. In bad cases, and when the bowels are constipated, half a teaspoonful of castor-oil may be given. It is often some days before the skin loses the yellow tinge.

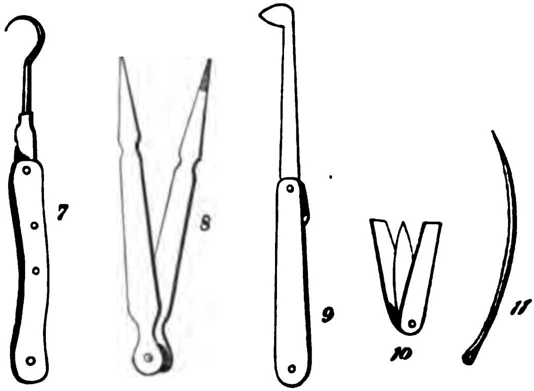
CHAPTER III.

ACCIDENTS AND INJURIES.

INSTRUMENTS REQUIRED.—The instruments and appliances required in ordinary surgical practice are—



1. The Probe.
2. The Director.
3. The Caustic Case, or Holder.
4. The Abscess Lancet.
5. The Curved Knife, or Bistoury.
6. The Blunt Knife.



7. The Tenaculum.
8. The Forceps.
9. The Gum Lancet.
10. The Vaccinating, or Bleeding Lancet.
11. The Curved Needle.
12. Scissors.

These instruments are contained in a small leathern case, in which also a little lint, ligature silk, and plaster may be carried; the whole passing conveniently into a small pocket.

1. **The Probe** is a piece of silver wire, sufficiently flexible to admit of bending without breaking, and used for the purpose of probing wounds, to ascertain their depth, or if foreign bodies are present or not.

2. **The Director** is a thicker piece of silver wire, deeply grooved on one side, and used to guide the surgeon's knife when opening sinuses or *fistulæ*. The director is first passed where it is wished to cut, and the knife is then thrust in the groove of the director.

3. **The Caustic Case, or Holder,** is a silver tube for holding caustic.

4. **The Abscess Lancet** is a large lancet, with broad-shouldered blade, used for opening abscesses.

5. **The Curved Knife, or Bistoury,** is a thin knife,

approaching the semicircular shape, used with the director for opening deep sinuses or *fistulæ*.

6. **The Blunt Knife, or Spatula,** is chiefly used for spreading ointments or plasters.

7. **The Tenaculum** is a curved, sharp-pointed piece of steel wire, set in a handle, and used for seizing bleeding vessels.

8. **The Forceps** are pincers, with or without a spring attached, used for taking off dressings, seizing foreign bodies, &c.

9. **The Gum Lancet** is of peculiar shape, having a small cutting surface projecting from the end, used for lancing the gums.

10. **The Bleeding, or Vaccinating Lancet,** is used as its name implies; also for opening small abscesses. But the instrument employed either for bleeding or vaccinating should not be applied to any other purpose.

11. **The Curved Needle** is a bent, flat-shaped needle, used for applying stitches to wounds.

12. **The Scissors** should be sharp and pointed.

In addition to the ordinary instruments described above as contained in the pocket-case, the following articles will be required in the medicine-chest for use in surgical cases:—

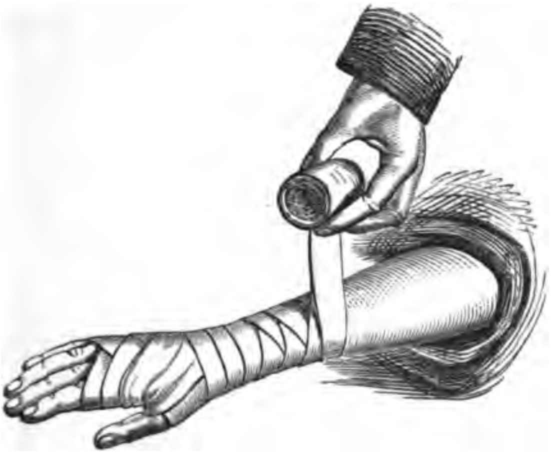
1. CATHETERS, FLEXIBLE.
2. BANDAGES.
3. PLASTERS.
4. LINT.
5. SPONGE.
6. TOURNIQUET.

1. **Catheters, Flexible.**—Catheters are instruments for drawing off the urine, and three of different sizes of the flexible—not metallic—kind should be carried in the medicine-chest. It sometimes happens after accidents, as, for instance, fractured thigh, that the person cannot make water and may require the catheter passed. And although this is an operation demanding surgical skill, it will be better for it to be attempted without such special skill, than for the patient

to be left without endeavours towards relief, and exposed to the risk of the urinary passages bursting, with often fatal consequences. By attention to the following directions, and with a flexible catheter, injury can scarcely be inflicted. The wire should be taken out of the tube of the catheter, and the latter should be warmed in tepid water, then dried and oiled. Next let the head of the penis be grasped with the fingers and thumb of the left hand, and the organ extended upwards and forwards. Next insert the point of the warmed and oiled catheter, *without the wire,* into the orifice of the urinary passage; then press steadily on, and the instrument, in the absence of permanent stricture, will pass into the bladder, and urine will flow. The use of silver or metallic catheters, or of flexible catheters *with the wire inserted,* requires special surgical skill, and should not be attempted. The sizes of the catheters recommended for the travelling-chest, are those known as Nos. 2, 4, and 8.

2. Bandages or Rollers are made of strips of linen, calico, or flannel, varying in breadth from one to three, five, or more inches, and in length from one to six, eight, or ten yards. A bandage for the arm should be about two inches wide by eight yards long; a leg bandage two and a half inches wide by ten yards long; and a bandage for the body five inches wide by twelve yards long. As far as possible a bandage ought to be made of one continuous piece without any joinings, and the selvedges should always be torn off. The surfaces and edges should be as smooth and even as they can be made, and there should be nothing which can press unequally on the skin, or irritate it in any way. Bandages should be kept ready tightly and longitudinally rolled up: hence their name 'rollers.' Besides the roller there are compound bandages, as the T-shaped bandage, described under Protrusion of the Bowel; the figure of ∞ shaped bandage, described under Fractured Cla-

VICLE; the four-tailed bandage, described under FRACTURE OF THE JAW; and various other forms. The principal uses of bandages are to keep on dressings, to protect diseased or wounded parts from injury, and to place restraint on motion of injured parts, also to afford support to muscles and vessels. In applying a bandage the roll should be held as represented below, and it should be passed from one hand to the other as it encircles the limb. A bandage should be first applied to the extremity of the limb, where it should be tightest, gradually becoming more slack as it ascends, and each fold should overlap about one-third of the previous one. No part must be 'skipped' or left uncovered by the bandage, or swelling of such part will very probably occur, and the roller will become loosened and easily detached. (*Vide* figure above and next page.)



Where the limb increases in size the bandage must be turned on itself, as represented in the sketches. Whenever a bandage is changed the part over which it has been applied should be sponged with soap and water, both for the sake of cleanliness, and also to prevent the irritation from the bandage, which is sometimes very troublesome. When a bandage has to be applied to the head, the hair ought to be combed, so that it may lie flat and not make unequal pressure on the scalp.

When a bandage is used to give support, or to make pressure, great care should be taken that it is not too tight in any part of its course. Cases are on record, even in Europe, in which mortification of the limb has been caused by too tight a bandage; and injurious results of similar character are frequent in the practice of native 'hukeems,' or 'jarrahs,' who do not understand the physiology of the circulation of the blood. It is particularly necessary to bear this caution in mind when applying a bandage to a limb that has been recently fractured. In such cases the parts are liable to swell, and a bandage which at the time of its application was sufficiently easy may soon become so tight as to cause a dangerous constriction, and this is especially liable to happen if the limb is allowed to hang down. In cases of bad fracture, or any severe injury, the bandage should be applied loosely in the first instance, particularly in the neighbourhood of the

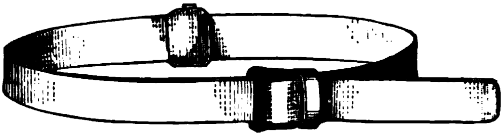
injury, and as the swelling decreases the bandage may be tightened. As the nails are always left uncovered in the application of bandages, it is a good and easy test of the state of the circulation to make pressure upon them, and to observe at what rate the return of blood takes place. If the circulation is free, the white mark which is made by pressing upon the nail ought to disappear at once when the pressure is removed. But if it lingers and fades away slowly, the injured limb is too tightly bound, and bandages and splints should be loosened, or even removed, at once.

3. PLASTERS are made by spreading the material on calico, or sometimes on leather. The stick of plaster should be rubbed with a heated plaster iron made for the purpose, or with a hot knife, when it will melt and fall on the cloth. Or it may be melted in a small saucepan and poured on the calico. It must then be evenly spread with the knife while warm. Plasters are spread on leather when it is required to afford more support to the part affected than would be given by calico; as, for instance, to fractured limbs after the splints are dispensed with. Adhesive plaster is the variety generally used for wounds. Plaster may be carried ready spread, but should be rolled up with oiled paper to prevent it sticking together.

4. LINT is required for many purposes; for cleansing wounds, for making small pads, and for spreading ointment on, when a thicker substance than linen is desirable as a covering for wounds.

5. SPONGE is useful for the purpose of conveying a stream of water (from a saturated sponge) to a wounded or diseased part. But sponge should not be used for the purpose of cleansing wounds or ulcers, as it is liable to become dirty and contaminated by the discharge, from which washing will scarcely free its porous substance. Lint, tow, or linen rag, which should be afterwards destroyed, should be generally used for cleaning away discharges.

6. TOURNIQUET.—This is a strip of strong cloth about an inch and a half wide, furnished with a buckle and pad, as here shown. It is used to stop bleeding or *hæmorrhage* by being buckled round the limb *above* the bleeding part, the pad being placed *over* the main artery. Or a tourniquet may be extemporised as figured at p. 362.



THE IMMEDIATE AND GENERAL TREATMENT OF ACCIDENTS AND INJURIES.—The immediate and general treatment of local injuries may be conducted according to the following rules. Separate and succeeding paragraphs will deal more clearly with the special treatment of particular injuries :—

1. The history of the accident, and the place of injury, should be ascertained by a few clear questions addressed to the patient himself if he is sensible and able to speak, or otherwise to the bystanders.

2. If the patient is insensible, place him on the ground or floor, lying rather on one side, and with the head raised to the level of the body by a pillow or other soft substance. This will tend to render the breathing more easy than it would be if the patient lay on the back. Then remove the necktie and collar, and split open or unbutton any clothing pressing upon the neck, chest, or abdomen.

3. The face and chest should be sprinkled with cold water and then wiped dry, and some cold water may be drunk if the power of swallowing remains. Stimulants, as wine or brandy, should not be hastily given, without evidence of their being needed.

4. As a rule, immediate bleeding is not advisable after any accident.

5. Examine the limbs one by one. If there is bleeding, note where it comes from, and follow the directions given under BLEEDING OR HÆMORRHAGE. The prominent parts of the limbs may be examined by touch with very little movement of the whole body, and any change of outline or form will probably be recognised by the eye.

6. If there be distinct local injury, it should be treated, if possible, at once, in the manner described under the different headings.

7. If it is necessary to move a person after any injury, especially of the head, the patient should be carried while lying down. He should not on any account be allowed to mount a horse, to sit upright in a vehicle, or even to walk.

8. Allow no useless talking to, or in the hearing of, the patient, and banish from his presence all except those necessary for his comfort and attendance.

9. In all cases of serious injury surgical aid should be procured as soon as practicable. When sending for a surgeon the message should be as clear as possible, and if practicable a written one. The directions in this book are not intended to supersede resorting to surgical skill whenever obtainable. But they may form a convenient code of rules to be acted on until the surgeon may arrive, or when professional aid cannot be obtained.

COURSE OF THE BLOOD-VESSELS.—Before proceeding to indicate the measures to be taken to stop bleeding from wounds, the courses of the principal blood-vessels are briefly sketched.

The circulation of the blood throughout the body is carried on by the heart, as the central receiving and propelling organ, and by blood-vessels connected with it. Omitting all reference to the circulation through the lungs, arranged for the purpose of oxygenating and renewing that blood which has already supplied the general tissues, it will be well to speak of blood-vessels in the two divisions of *arteries* and *veins*, the *former* carrying bright red arterial blood *to* the different parts of the body *from* the heart, and having a distinct pulse at each beat of the heart; the *latter* carrying dull red or dark blood *from* the various parts of the frame *back* to the heart, and not possessing any distinct pulsation.

The main arteries pursue a tolerably direct course to the various limbs, and are placed, as a rule, not very near to the surface of the body; the position they occupy is the sheltered one on the inside of each limb.

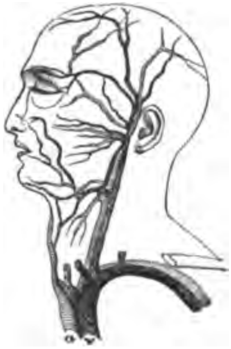
The veins run in two sets—*superficial*, which are abundant in number, communicate freely with each other, and run a tortuous and twisted course—*deep*, which for the most part are situated side by side with the large arteries, and are more direct.

An outline of the course of the main vessels will not be difficult to remember, and will be a necessary guide to the ready arrest of bleeding.

In the following drawings (Figs. 1, 2, 3, 4, and 5), the dark vessels represent veins, and the light vessels arteries. The letter *a* in the drawings signifies artery, the *v* signifies veins.

There is on each side of the neck a large artery (*carotid*, Fig. 1) which carries blood from the chest to the neck and head. It runs in a line from the inner end of the collar-bone to the angle of the lower jaw, and the pulsation is throughout fairly evident to the finger. The deep jugular vein lies very nearly parallel to the artery; the superficial jugular vein is near the surface, and can be seen under the skin.

Fig. 1.



The large artery (*subclavian*, Fig. 2) which supplies the upper extremity with blood, passes out of the chest directly over the uppermost or first rib, and then curves downwards towards the arm. In the armpit the artery may be felt beating by pressing against the arm-bone near the top of the hollow of the armpit. From this point it runs onwards to the elbows, keeping on the inside of the arm, and to the inner side of the prominent muscle (*biceps*) of the arm. It is accompanied by parallel veins.

Fig. 2.

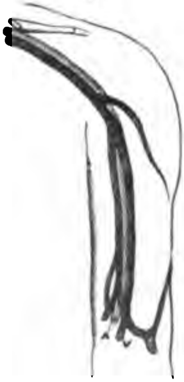
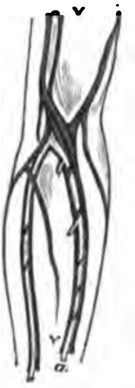
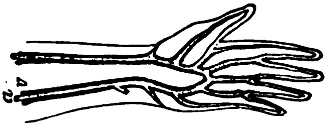


Fig. 3.



Just below the bend of the arm the artery (Fig. 3) divides into two, one (now called *radial*) taking the line of the outer bone of the forearm, the other (*ulnar*) lying almost parallel with the inner bone. In the upper part of their course pulsation is not well felt, as they are covered with muscles. At the wrist joint both vessels may be felt beating.

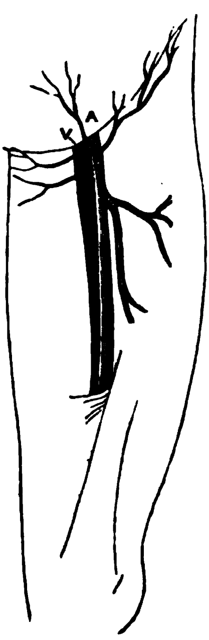
Fig. 4.



Other branches pass onwards (Fig. 4), forming arches in the ends of the fingers and in the palm of the hand.

The large artery of the lower extremity (*femoral*, Fig. 5) passes out from the groin, lying about the middle of the crease of the groin, and almost at right angles to it. From this point it runs onwards inclining to the inside, and turning round a little below the middle of the thigh-bone into the ham. In the upper three inches of its course the artery lies very superficial, and may be felt pulsating. It then becomes deeper seated, but may still be compressed against the thigh-bone. The artery is accompanied by a large vein which lies at first to the inner side, but afterwards behind. Several smaller and one large branch are given off as the artery passes through the thigh. (*Vide* Fig. 5.)

Fig. 5.

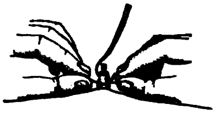


As in the arm at the elbow, the main artery at the knee divides into two (called the *anterior* and *posterior tibial*). Both are deeply seated and covered with muscles, and their pulsation, except near the ankle joint, is not easily detected.

The foot, like the hand, is supplied with small branches from the two arteries.

BLEEDING or HÆMORRHAGE.—A knowledge of the course of the principal blood-vessels may be obtained by seeking out their course on the living subject, by the pulsation they afford. Wherever an artery can be felt beating, pressure (especially if against a bone) made with either the fingers, or by other means, will stop bleeding taking place from any wound below the part in the limbs; or, when pressure is made on the carotid artery in the neck (*vide* pp. 362, 356), above the part in the head. It must be understood that bleeding from arteries is ordinarily recognised by vividly scarlet blood rushing out in jets, or jerks. Bleeding from veins is known by the black appearance of the blood, and by its flowing in a continuous stream, and not in jets. When, however, an artery is wounded deep down in the substance of a limb, the jet, or jerk, may be absent, and from retention in the deep wound the blood, although arterial, may become darker than it would otherwise be. Bleeding from a large artery is dangerous, and will not stop without surgical treatment. Bleeding from veins is not often dangerous, and will generally stop without surgical treatment. The reasons why arteries continue bleeding and veins do not, are found in the difference of structure, and in the manner of circulation of the blood. Arteries are elastic tubes, remaining open when cut by their own elasticity, and carrying blood away from the heart to the surface of the body. Veins are not elastic, have a tendency to close when cut, and convey blood from the surface of the body.

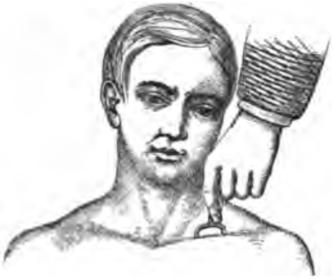
Bleeding or *Hœmorrhage* may be either external from the blood-vessels above described, or it may be internal from deeper seated vessels. External bleeding, except from a wounded artery of considerable size, is seldom dangerous to life. It generally stops on the application of pressure, or when the person becomes faint. Bleeding from a wound may in general be stopped by *pressure* with the finger, or with a bit of cork, or a hard linen pad; especially if the wounded part is over a bone, as, for instance, on the skull, or on parts of the face where pressure can be made against the bone. But if this does not succeed, each edge of the wound must be lifted up, carefully examined, and the mouth of any bleeding artery should be twisted with the forceps. If of large size, or if not stopped as above even if of small calibre, it will require tying. If the larger artery of the arm or leg is injured, an operation involving a dangerous dissection is necessitated, which can only be undertaken by a skilled surgeon. When the artery is of smaller size, and can be seen by turning up the flaps of the wound, the point of a tenaculum (A) should then be applied as nearly as possible to it, and the spouting mouth (B) drawn up sufficiently to pass a strong thread or silk round it below the tenaculum. One end of the silk should then be passed through the other, and both ends drawn steadily till the blood ceases to flow from the vessel, the mouth of which is seen gaping, open, and white. The knot should then be completed. Any other spouting vessel must be hooked up and tied in the same way. After which, if the bleeding cease, the wound may be brought together by plaster, the ends of the ligature remaining *outside*. The ligature will come away with the discharge in five or six days' time, or at an earlier period if on a small vessel. The method of seizing and tying a small artery is here shown. Instead of the tenaculum, a pair of forceps may be used to take up the mouth of the artery.



When wounds happen in the limbs, involving injuries of larger arteries, they are followed by much and continued bleeding, which cannot be controlled by pressure on, or near the wound; neither can the dissection in search of the wounded vessel be undertaken without surgical knowledge. But the bleeding may be temporarily stopped with little difficulty by an unprofessional person, and so afford time for the arrival of surgical aid.

When bleeding occurs from any part of the head or neck, it will be from some branch of the carotid artery. To arrest this, pressure should be employed in the neck over the course of this artery (*vide* p. 356) in a direction rather inwards and backwards, so as to press the vessel against the side projections of the bones of the neck. This pressure is best accomplished with the fingers.

If the bleeding be from a wound in the arm near the armpit, a bystander should press his thumb firmly into the neck behind the middle of the collar-bone, which will stop the flow of blood through the great artery of the arm as it is first coming out of the chest. As, however, the pressure thus made soon tires the thumb, the handle of a large key, or other object of similar shape, wrapped in three or four folds of linen, may be pressed behind the middle of the collar-bone, and held without fatigue for an indefinite time till surgical assistance can be obtained, or if the bleeding comes from a small artery, until the blood ceases to flow, which may be ascertained by slightly and gradually diminishing the pressure.

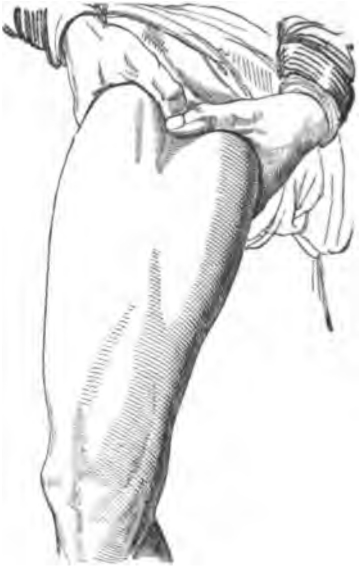


If the bleeding is from a wound in the forearm or below the elbow, the brachial artery should be controlled by compression with the fingers on the inner side of the arm in the position of the artery, or by the application of the tourniquet round the limb, or by the handkerchief and stick as figured at p. 362.

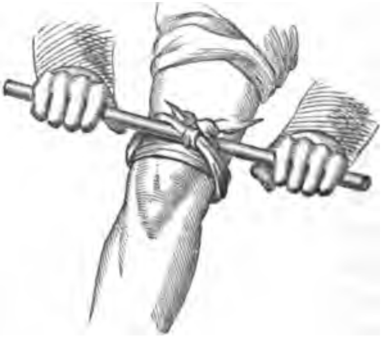
For the method of stopping bleeding from the palm of the hand, *vide* WOUNDS OF THE PALM OF THE HAND, p. 449.

If there is very severe bleeding from a wound in the leg or thigh, especially if high up in the latter, the great artery which supplies the limb may be pressed so as to prevent the flow, by applying the thumbs with some force immediately below the crease of the groin. This pressure is made with less difficulty than when necessary behind the collar-bone, but the door-key or other convenient instrument may be used.

When the bleeding is below the middle of the thigh, or the middle of the upper arm, a substitute for the tourniquet



may be used, composed of a stout pocket-handkerchief and a piece of tough stick, which is to be applied as follows:—



Pass the handkerchief once or twice round the limb, some distance, if possible, above the wound. Then push the stick between the handkerchief and the skin, and twist the stick so that it screws the handkerchief until the blood ceases to flow. The twisting should only be continued till the bleeding stops, as the application of more pressure than is necessary to effect this will bruise the limb.

The surgical tourniquet, for which the stick and handkerchief is a substitute, has already been described (p. 354). When a tourniquet is not at hand, or when no one knows how to apply the tourniquet, the stick and handkerchief used as directed will answer the purpose very well, until skilled assistance can be obtained.

BLEEDING FROM THE NOSE.—This may result from direct injury, as a blow; or it may occur from a plethoric or too full condition of system; or, on the other hand, from a thin, poor state of the blood, as happens in scurvy, or in debility, the result of fever, and malarious poisoning. If the bleeding arises from a blow, it will probably stop after a few minutes, and the application of cold water to the face and back. If it continue, a pinch of powdered alum dissolved in a couple of tablespoonfuls of cold water may be thrown up the nostrils with a syringe. If bleeding from the nose depends on too full a condition of system, and recurring, perhaps, periodically, low diet, purgatives (Recipes 1 and 2), especially if costiveness is present, and astringent medicines (Recipe 58) are the proper remedies. Moderate bleeding from the nose may be regarded as salutary, when the person is red-faced, plethoric, and subject to headache or giddiness. It is then an effort of nature to relieve herself, and, unless violent, should not be suddenly restrained. If the bleeding appears to depend on too low a condition of the system, preparations of quinine (Recipe 18) are necessary, and the diet must be liberal. Bleeding from the nose frequently occurs to children, and in the majority of cases a thin, depraved condition of blood is the cause, and the complaint must be treated accordingly. In all cases of obstinate bleeding from the nose, the body should be kept in the upright posture, and the hands should be raised and held by other persons above the head. A bladder of ice or a cold wet cloth may be applied to the forehead, a piece of cold metal, as a door-key, to the back, and the patient may snuff up powdered gall-nuts. The nostrils should also be pressed together with the thumb and fingers for half an hour. If these measures do not succeed, plugging the nostrils will be required. The anterior part of the nose is easily plugged by inserting a roll of lint into each nostril, but the posterior nostrils can only be plugged by a surgeon acquainted with the anatomy of the parts, and the position of the openings from the posterior nostrils into the back of the mouth or throat.

[When the bleeding is connected with a plethoric condition of system, sulphuric acid (Recipe 59) is a better remedy than the alum mixture (Recipe 58) mentioned above. When the bleeding depends on a feeble state, the iron mixture (Recipe 22) is preferable to Recipe 18; and in bad cases these medicines should be procured and used.]

BLEEDING FROM LEECH-BITES.—Leech-bites sometimes give much trouble from continued bleeding. If the person is moderately strong, and the loss of blood is only from one or two wounds, it may generally be allowed to go on, and it will stop in a few hours. But if in delicate people or children, the loss of blood must be stopped at once, more especially if the patient is to be left during the night. This is usually effected by the application of cold water, or by pressure with the finger, through which bleeding cannot take place, continued, if necessary, for an hour. If this does not succeed, a pinch of powdered alum should be pressed into the bites.

[Other means of stopping bleeding from leech-bites, which may be employed if necessary, are pledgets of lint dipped in spirits of wine, which may be pressed into the holes; or the latter may be touched with a finely pointed stick of caustic. Occasionally, it has been found necessary to pass a needle through the skin under the bite, and to tie a ligature below the needle in the form of a figure of 8 knot.]

To avoid trouble from bleeding leech-bites, it is well, when practicable, to apply leeches over some bone, in order that pressure, if required, may be placed effectively. The main rule with regard to children is to employ small leeches. Two little leeches may be used instead of one large one, the bites of the former rarely bleeding so much after their removal.

BLEEDING FROM THE SOCKET OF A TOOTH.—This variety of bleeding is sometimes very troublesome or profuse after the extraction or accidental loss of a tooth. It may be readily stopped by applying a plug of lint to the part, shutting the teeth close, and running a bandage round the chin and head to prevent the mouth being opened for several hours, during which time the pressure thus exerted stops the bleeding. Or the extracted tooth may be returned to its socket to act as a plug, the chin being bandaged as above.

BLEEDING, INTERNAL.—This occurs from injüry or disease of internal blood-vessels. The bleeding may take place into the lungs, when the blood is coughed up; into the stomach, when the blood is vomited up; into the bowels, when it is passed by stool; into the bladder, when it escapes with the urine; or into other cavities of the body, from which there is no outlet, as, for instance, within the skull. Internal bleeding, excepting when into the cavity of the skull, is accompanied by great depression and faintness, by cold perspirations, by feeble intermittent pulse; the condition described as *collapse* being, in fact, present. When bleeding takes place within the head, laboured or stertorous breathing and insensibility, as described under APOPLEXY, are the chief results. Perfect rest, acid drinks, as lemon juice and water, keeping the body cool, astringent mixture (Recipe 58), and very low diet are the principal means. But each variety of internal bleeding requires skilled treatment, and further remarks would be misplaced in a work of this scope.

BLISTERS.—This term signifies the formation of watery fluid between the upper and middle layers of the skin. They generally result from continued friction, as, for instance, of an ill-fitting boot, on the toes or heel. Or they may be produced by irritating substances applied to the skin, or arise from burns or scalds. The proper method of treating a blister, however produced, is, if very small, to let it alone, when the contained fluid may be absorbed, and the upper layer of the skin will eventually peel off, leaving a healed surface below. If the blister is large, it should be pricked at the most dependent position, and the water should be allowed to drain out. The loose skin above should be preserved as long as possible, as it forms the best covering for the tender surface below. It should be protected by simple ointment (Recipe 86) spread on lint, and the part should be carefully guarded from any friction or injury.

BRUISES.—By bruises are understood injuries in which the skin is not broken. These may be of a very slight or a very severe description. In the first variety the surface of the skin only is injured, but the little blood-vessels therein contained being ruptured, blood becomes effused in the tissues, and discoloration occurs. The familiar instance of a 'black eye' will illustrate this description of bruise. If the injury is more violent, a similar rupture of blood-vessels, and escape of blood, takes place in the muscular and other structures beneath the skin. Or, as sometimes happens, the skin itself may escape injury, and the deeper parts alone suffer. In this case discoloration does not become apparent until twenty-four hours, or longer, after the injury. More or less bruise, both superficial and deep-seated, always attends injuries, such as sprains, broken bones, and dislocations. For slight bruises, such as occur to children falling down, the old-fashioned remedy of brown paper steeped in brandy is not a bad application, or tincture of arnica may be painted over the injured surface. For more severe bruises, the best treatment is to keep the bruised part well raised, if practicable, lying on a pillow, and fomented continually with hot water and flannels. If the bruise is of a serious nature, blisters will now probably form on the surface of the skin. These must be snipped with a pair of sharp scissors at the most dependent part, and the contained water allowed to drain out. But the raised skin or cuticle should not be taken away. After the first two days hot fomentations may be *gradually* discontinued, and a cold lotion, composed of one ounce of vinegar in four ounces of water, may be employed. In the less severe cases cold applications may be used from the first. At a still later period, rubbing the part with brandy and salad oil in equal parts, or, if obtainable, with soap liniment, may be adopted. But at first frictions and liniments do more harm than good. One part of spirits of camphor and three of water, used instead of the lotion, is said to favour the disappearance of discoloration; but, in reality, time and the natural action of the absorbents are the principal agents.

Sometimes bruised parts are so badly injured as to inflame, or a large blood-vessel may be ruptured, and much blood escape into the tissues. Under these conditions abscess may form, the skin may burst, and sloughing or mortification may occur. In such cases poultices of bread or linseed meal must be applied, until the mortifying parts separate, and the wound becomes clean. Surgical interference, in the form of incisions to promote exit of matter, is also not unfrequently necessary.

BURNS AND SCALDS.—The effect of burns and scalds on the skin is, in the first instance, the same. They may be slight, producing mere redness of the surface; or when more severe, blisters; or when still more severe, partial or total destruction of the parts injured. Three different degrees of burning or scalding have been accepted as including all varieties. 1st. When the contact with fire or water has been but a very short time, and the injury is that of redness, or inflammation of the skin, with coincident severe pain. 2nd. When blisters have formed from a greater amount of heat being applied. 3rd. When there is destruction of the skin or underlying structures, or where they are changed into a black or yellow mass, and all vitality destroyed.

When the clothes catch fire the sufferer should not on any account run about, as every draught of air will fan the flame. He should lie down on the floor, and roll, or be rolled in a rug, table cover, carpet, or any convenient article sufficiently voluminous and thick to stifle the flames. Or such not being available, the person should roll on the floor, until the flames are mechanically put out. If water is at hand, it should, of course, be dashed on the person. Then the patient should be laid on a bed, and if there is much shock to the system, or faintness, or prostration, some hot coffee, or wine and water should at once be given. Next the clothing should be removed by cutting it away from the injured parts. If the skin should adhere to any part of the dress, the piece of the latter should be left, rather than the skin be torn in taking it away. The stockings, especially, must be removed with great care, lest the cuticle or upper layer of the skin separate with them, which would materially increase the sufferings of the patient. It will facilitate the removal of the stockings if they are first soaked with salad-oil. In the case of burns or scalds of the hands or feet, it is a good plan to immerse them, with the gloves or stockings on, in cold water. After a few minutes they should be removed, and partially dried with a towel. Spirits of wine, turpentine, kerosene oil, or brandy and water in equal parts should then be dropped on the glove or stocking to moisten it thoroughly. After five or six hours of such treatment, the coverings may be cut carefully away, and the blisters may be snipped. Then the parts may be covered with lint, moistened with either of the above applications, and if the injury be slight it will be healed in forty-eight hours.

A slight burn may also be treated by the application of lint, or cloth, or plantain leaf soaked in salad-oil; or the part may be covered with a layer of cotton wool secured by a bandage. When burns are severe and extensive, they are accompanied by constitutional symptoms, such as pallor, cold extremities, cold perspirations, quick irregular pulse, and shivering (*vide* COLLAPSE). In such cases stimulants, as wine or brandy and water, and hot drinks, as tea and coffee, will be required at the onset, and chloral (Recipe 75) may be necessary to relieve pain when reaction occurs. The parts burned should be dressed with 'Carron oil' (Recipe 87), or if this is not at hand they may be thickly dusted with fine wheat flour. All cold applications to extensive burns or scalds should be avoided as most injurious. The first dressings should not be removed for two days, after which the parts should be dressed daily. At each removal of the applications the parts must be well cleansed by permitting a stream of warm water to flow over them from a sponge, but the injured parts should not be wiped or touched with the sponge. All blisters should be snipped, but no wrinkled skin or raised cuticle should be removed. In dressing extensive burns, care should be taken to avoid exposing more than a small part at one time, or the cold will be injurious. The cotton-wool dressing, frequently employed in Europe, is not recommended for severe burns or scalds in India. As used on the principle of excluding air, it must be suffered to remain *in situ* several days, becoming hard, dry, and irritating; and, moreover, it is liable to harbour maggots. When the surface becomes red, healthy, and clean-looking, nothing will be more beneficial than simple water dressing, *id est*, lint soaked in tepid water, laid on the part, and the whole covered with oil skin. If granulations become too exuberant, growing above the surface of the surrounding skin, and forming what is popularly called 'proud flesh,' they must be lightly touched with alum.

It should be recollected that superficial, or the first variety of burns and scalds, although only producing redness of the surface, are, if extensive, and particularly if occurring to children, very dangerous; that all burns of the trunk are more dangerous than those of the limbs; that repeated shivering is a bad symptom; and that apathy, insensibility to pain, stupor, and twitchings of the limbs, are the usual precursors of death.

Cicatrices, disfiguring scars, contracted joints, and deep ulcers, sometimes the result of burns and scalds, can only be treated on established surgical principles, and probably each case will require a somewhat different plan.

BURNS OR SCALDS OF THE FINGERS AND TOES must be treated with great care, in order that the different parts may be kept separate, so as to prevent the raw surfaces of the fingers or toes touching each other. This may be readily effected by different dressings.

INTERNAL SCALDS OF THE THROAT, affecting the upper part of the windpipe or *glottis*, are very dangerous. Such injuries most frequently occur to children, the symptoms being suffocative cough and difficulty of breathing. Leeches to the throat, ice to the throat, ice to suck, and a teaspoonful of salad-oil every three hours are the best remedies. But such cases frequently require the surgical operation called *tracheotomy*, or opening the windpipe, which can only be performed by a surgeon.

COLLAPSE, SHOCK, or PROSTRATION.—This is a very common accompaniment of all severe injuries, as gun-shot wounds, laceration of joints, blows on the stomach or privates, and severe burns. Collapse always attends great losses of blood, from whatever cause the bleeding may arise, and it may be produced by fear, by cold, and from large doses of certain poisons. The collapsed person lies cold and half unconscious, with feeble pulse, and sighing sometimes almost imperceptible respiration. There is cold sweat, particularly apparent on the forehead, extreme muscular debility, and benumbed sensibility of the skin. The condition altogether is very similar in appearance to that of fainting. In some cases there are nausea, hiccup, and vomiting from the first. If the injury affects the spine, stomach, chest, or private parts, the collapse or shock is more severe. If the brain is affected the insensibility is more complete, although the pulse and respiration may be stronger. Occasionally the person is bewildered and incoherent, as if intoxicated. Vomiting is often a prelude to recovery, the first sign of which is called the *reaction*. When the *reaction* is perfect the pulse becomes stronger and fuller, and the breathing deeper and well marked. The most favourable signs are, returning warmth of the surface of the body, and slight restlessness on the part of the patient, with inclination to lie on the side. In the course of a few hours there may be some fever, indicated by a hot skin, a flushed face, and rapid pulse. These symptoms, however, in favourable cases soon pass off, and complete recovery is established. In unfavourable cases the febrile symptoms increase, and after a few hours signs of nervous excitement and of exhaustion appear. There is trembling of the tendons of the wrist, restlessness, and generally delirium. The pulse becomes feeble, the skin cold, and there may be hiccup and vomiting. Occasionally there are convulsions, although these are more common in children than in adults. Patients who have been accustomed to take considerable quantities of beer or spirits frequently present, during the stage of *reaction*, a series of symptoms very similar to those of *delirium tremens*. In individuals who are naturally weak and delicate *reaction*, although favourable in its progress, may be slow, so that complete recovery is not attained for several days. In ordinary cases the duration of collapse is very various. The symptoms may pass off quickly, or as much as forty-eight hours may elapse before even *reaction* is established.

Treatment.—The principal requirements are to keep up the action of the heart and lungs, and to maintain the temperature of the body, until the effects of the sudden and violent impression—the shock—to the brain and nervous system have passed away. In the first place the patient *must* keep to the *recumbent* posture; and in a case where there has not been much bleeding, and when no large wound exists from which bleeding may occur, he should be placed between blankets, bottles of hot water or hot bricks wrapped in flannel being placed near the feet and in the armpits, taking care that the heat is not sufficient to burn the patient. Warm brandy and water should be given frequently in small quantities, the brandy being diluted with rather less than an equal quantity of water. But if there is profuse bleeding, brandy must *not* be administered so freely. With respect to the actual amount of brandy to be given in any case, no positive rule can be laid down, as the quantity required differs in most instances. A tablespoonful every half-hour, if there is no bleeding, and a teaspoonful if there is, may perhaps be accepted as some guide. If brandy is not at hand some other spirit, as whisky or rum, should be used. As with the stimulant in cases of bleeding, so in the application of warmth to the body, great caution must be observed. As a general rule, until the bleeding has been stopped, warmth should only be applied to the feet. It should be recollected that, until *reaction* has well advanced, *the patient must not be raised to an upright position.* After reaction is established, and the patient becomes feverish, purgatives (Recipes 1 and 2), and cooling medicine, as citrate of magnesia, will probably be required. The treatment of the symptoms indicating *imperfect reaction* consists in supporting the system by nourishing broths or beef tea, and in allaying nervous irritability by sedatives, of which chloral (Recipe 75) is one of the best for the purpose.

CONCUSSION OF THE BRAIN, or BRAIN SHAKE.—This condition, commonly called 'stunning,' signifies sudden interruption of the functions of the brain, by a blow or other mechanical injury to the head, either direct or indirect. Of this condition there are several degrees. In the mildest form the patient experiences a sudden weakness and muscular trembling in the limbs, especially the lower, and cannot walk without staggering; at the same time, there is a ringing sound in the ears and dimness of sight. These symptoms soon pass away, after the person has rested for a time in a darkened room. In the second form of concussion the person lies motionless, pale, and unconscious. The skin is cold and the pulse weak. The eyelids are closed, the pupils of the eyes contracted, and the arms and legs generally bent on the body. The breathing is slow and regular; and if the patient is roused and questioned loudly, he opens his eyes, answers hastily, and again relapses into insensibility. It is important to bear in mind the two facts stated in the last paragraph, as they mainly serve to distinguish concussion from *compression of the brain*, when the breathing is heavy and laboured, and the patient cannot be roused. After a variable time, ordinarily about an hour, the patient moves uneasily, vomits, and recovers his senses, but remains giddy, confused, and sleepy for some hours. In a still more severe degree of concussion the patient is more profoundly insensible, the surface of the body pale and cold, the pulse not only weak but also intermittent, and the breathing drawn in sighs.

It may be noticed that the symptoms marking *concussion of the brain* somewhat resemble those of *collapse*. In fact, concussion cannot exist without more or less collapse, but concussion implies, as well as the state of collapse, a greater degree of implication of the nervous system, arising from the direct injury to the brain. There is, therefore, more insensibility in concussion than from collapse without concussion of the brain.

Although simple concussion of the brain is not the fatal condition popularly supposed, it nevertheless often leaves in its train mischief which may be of permanent and serious import. There may arise an irritability of the brain, marked by hasty, violent temper, or by very speedy excitement after drinking spirits or wine; there may be defects of sight and hearing, muscular weakness, and nervous debility; or temporary or permanent insanity may even result. These sequences are due in many cases to indiscretion on the part of the patient, who as soon as the symptoms of concussion have passed away, and while the brain is still irritable and enfeebled, returns to his former habits, and probably to brain work. It should be recollected that there is no case of concussion, or of partial concussion, so trivial that it may be neglected with impunity, and the patient should return gradually to his former employments; the less quickly, the more severe the state of concussion into which he was thrown.

Treatment.—The patient should be placed on a bed or couch in a darkened room, the neck and chest should be freed from articles of clothing, the head should be slightly raised, and a cold wet cloth should be applied to the forehead. In more severe cases, when the surface of the body is cold, the patient should be placed between blankets, bottles filled with hot water and wrapped in flannel should be applied to the feet and armpits, and the legs, hands, and arms should be well rubbed. Spirits or other stimulants must *not* be administered, but as soon as the patient can swallow a little water may be given, or, if procurable, broth or beef tea. If there is long-continued insensibility or imperfect rallying, an assafœtida injection (Recipe 105) should be used. In the great majority of cases, although the ignorant are often clamorous for more active measures, the simple treatment advised affords the patient the best chance of rapid and thorough recovery. *Natural* sleep should be encouraged.

The after treatment of concussion consists of perfect rest both of body and mind, maintaining the bowels freely open by aperients (Recipes 1 and 2), with a mild nutritious diet. Stimulants of all kinds must still be avoided. If headache or feverishness comes on, or any impairment of the mental faculties is observed, a strong mustard poultice (or, if procurable, a blister) should be applied to the back of the neck, and the bowels should be still more freely purged. If unfavourable symptoms persist, it may also be necessary to cut the hair close, and to apply leeches to the temples.

CONCUSSION OF THE SPINE.—Of this injury, as of concussion of the brain, there are minor and severe forms. Concussion of the spine usually occurs from severe shakings, as happen on carriage or railway accidents, or from blows on the spine. Concussion of the spine is marked by more or less severe pain at the seat of injury, general bodily prostration, weakness of the lower limbs, or even difficulty of walking, numbness in the feet, and diminished sensation in the skin of the lower extremities. In more severe cases there may be difficulty of making water, and swelling of the bowels, due to their distension by gas. If the injury has been only concussion or shaking of the spinal marrow, and nothing has been torn or ruptured, these symptoms usually subside in the course of two or three weeks, and the patient recovers thoroughly. In some instances permanent weakness of the lower limbs, or even complete palsy, with more or less difficulty or inability of making water, results. The treatment of concussion of the spine consists mainly in keeping the patient in bed, in applying leeches to the painful part of the back or loins, and in giving tonics and nourishing food.

The severe shakings consequent on railway accidents have resulted in the production of a peculiar condition of the spinal cord, to which the term 'railway spine' has been applied. The rapidity of the movement causing the injury, the momentum of the person injured, the suddenness of its arrest, the helplessness of the sufferer, and the natural fear occasioned, are all circumstances in railway accidents greatly increasing the severity of the injury to the nervous system, and which have caused these cases to be considered as somewhat exceptional from ordinary accidents. A patient is often unaware that anything serious has happened, feeling perhaps only violently jolted and a little giddy and confused. After a while, however, he becomes excited and cannot sleep, and probably the next day, or the day after, feels bruised all over as if he had been beaten, or had gone through some violent exertion. This stiff strained feeling chiefly affects the muscles of the back and loins, but often extends to the shoulders and thighs. After another few days he finds he is unable to undergo any exertion, or to attend to business. The thoughts become confused, the temper irritable, the sleep disturbed, and there are often noises and singing in the ears. The senses of hearing, taste, and smell sometimes become perverted. There is also a loss of freedom of movement, and the gait becomes uncertain and 'straddling,' while one or both of the feet may be unusually cold. Sometimes these symptoms begin to develope immediately after the injury; sometimes not for days or even weeks. When such results follow a railway accident, it is rarely that the patient recovers his former health. With regard to treatment, the first thing is *complete rest,* both for body and mind, and cold lotions or ice should be applied over any part of the spine in which pain is felt. Internally, the bichloride of mercury, with quinine and bark, are perhaps the most satisfactory remedies.

COMPRESSION OF THE BRAIN.—This results either from blood being effused beneath the skull, or from a piece or pieces of bone being detached or depressed, and driven down on the brain or its membranes, both of which conditions may be the result of blows or other injuries. When, after the symptoms of CONCUSSION OF THE BRAIN (*vide* p. 373), (or after severe injuries without such symptoms) the patient does not revive; or reviving, afterwards sinks into stupor, from which he cannot be roused; with heavy laboured breathing, with one or both pupils of the eyes dilated, with the surface of the body becoming warmer, and the pulse quicker and full, serious injury of the brain may be suspected. Such a condition requires skilled advice. Stimulants must not be given, but a cold lotion may be applied to the head, purgative injections (Recipe 105) should be administered, and the operation of 'trepanning' may be necessitated.

CUTS.—*Vide* WOUNDS, p. 443.

DISLOCATIONS.—A bone is said to be dislocated, or vulgarly, 'put out,' when the head of the bone slips from the socket in which it plays.

Symptoms.—The chief symptoms of all dislocations are —1. Pain. 2. Deformity; there being an alteration of the normal shape of the joint; such as an unnatural prominence in one part, and a depression at another, together with generally *shortening*, but in some varieties *lengthening*, of the limb. 3. Loss of the proper motion of the joint.

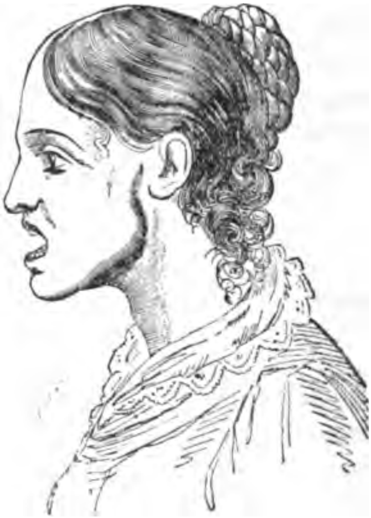
Dislocations are to be distinguished from *fractures* near the joint; *first*, by the absence of *grating* on movement of the injured parts; *secondly*, a fractured bone is more freely movable than natural, a dislocated bone is less so; *thirdly*, if a fractured bone is drawn into its proper place it will return so soon as the 'extension,' or pulling, is discontinued, but a dislocated bone drawn into its proper position will remain there; *fourthly*, by measurement of the *bone* supposed to be broken, which, if fractured, will be shortened, while the dislocated bone is of the natural length. Comparisons of the length may be made with the bone of the sound limb.

Treatment.—Dislocations must be 'reduced,' or returned into place. Sometimes this can be effected by placing the parts in such a position that the muscles will draw the head of the bone into its socket. But most usually force is required to accomplish this. After reduction fomentation will always, and leeches sometimes, be necessary to relieve inflammatory pain and swelling. Dislocations should always be reduced as soon as possible, otherwise the muscles contract, and fix the bone in its new position.

Compound Dislocation is the term applied to those cases when (as mentioned of fracture) an external wound communicates with the dislocated joint. But such injuries are always more dangerous, requiring skilled surgical advice.

The more common forms of dislocation are now described separately.

Dislocation of the Lower Jaw.—This may be caused by a blow on the mouth, or sometimes from spasmodic action of the muscles when a person gapes. The mouth is open and cannot be shut. Speech and swallowing are scarcely possible, the saliva dribbles away, and the chin protrudes forwards, as



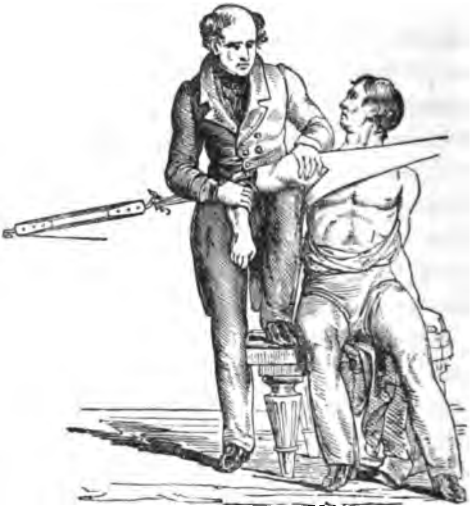
in the figure on the opposite page, so that the lower row of teeth project beyond the middle teeth of the jaw above. Sometimes one side only of the bone is dislocated, and then the teeth are displaced laterally *away* from the side of dislocation.

Treatment.—Put the patient in a chair, with the back of the head against a wall. Then let the operator wrap a napkin or handkerchief round each of his thumbs. Place the thumbs thus protected on the back teeth of the lower jaw, the fingers clasping the under part of the jaw outside. Then press the thumbs firmly downwards and backwards, elevating the chin at the same time with the fingers. The jaw will generally return into its proper place with a snap, and if the thumbs of the operator were not protected, they would probably be injured by the patient's teeth. Afterwards a four-tailed bandage, as described for a broken jaw, should be worn for a week, during which time the patient should have only fluid food, and not attempt to masticate solids too soon.

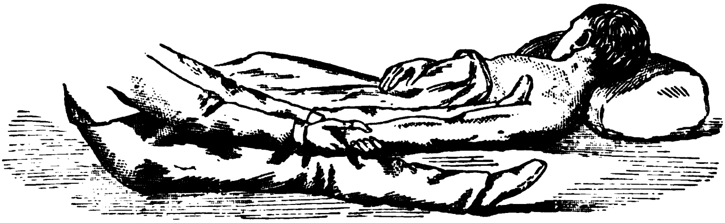
DISLOCATION OF THE SHOULDER JOINT.—The *humerus*, or arm bone, may be thrown from its socket in several different directions, but most commonly it slips by the side of the socket into the armpit. In this injury the arm is *lengthened*, a hollow is seen or felt under the tip of the shoulder, where the head of the bone should be, and the whole shoulder looks flattened. The elbow projects out from the side, and cannot be brought to touch the side, and the head of the bone can be felt in the armpit, becoming more evident if the elbow is raised. There is also great pain, and numbness of the fingers, caused by the pressure of the dislocated head of the bone on the nerves of the arm. The patient leans over to the side of dislocation, and supports the elbow of the injured side with the opposite hand.

Treatment.—There are several methods by which this injury may be righted; but if any *grating* should be felt or heard on moving the injured limb, attempts at replacement should *not* be continued, as there is probably also *fracture*.

First.—A strong towel or other piece of cloth should have a slit made in the centre. Through this slit the hand and arm must be passed until the towel presses on the chest below, and on the upper part of the shoulder above. Another towel must be fastened round the arm above the elbow. The patient should then sit on the floor, or on a low stool. Then let the chest towel be firmly held, while the arm towel is *gradually* pulled by assistants, the operator standing behind the arm. After the extension has been continued for two or three minutes the operator should lift the head of the bone, when it will probably pass into the socket. The positions necessary are shown in the preceding drawing.



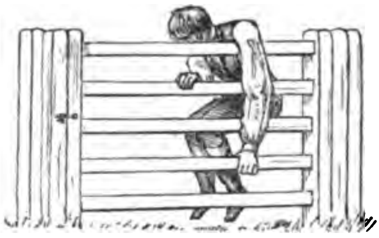
Secondly.—By the heel or foot, in the *axilla* or armpit. The patient lies down on a bed, or on the floor, and the surgeon or operator sits on the edge. The latter then places his *unbooted* foot in the armpit, pressing upwards and outwards, at the same time grasping the hand and wrist, which he pulls steadily towards him. The head of the bone will then probably pass into its place. Sometimes this can be best effected by the flat of the foot being in the armpit, at other times the greater pressure to be made by the heel is required. The left foot should be used if the left arm is to be operated on, and *vice versâ.*



Thirdly.—Have the patient seated on a chair, rest your foot on the chair, and place the bent knee in the armpit. Then depress the elbow, and the bone will probably glide into its place.

Fourthly.—Some dislocations occurring to thin persons may be still more easily reduced by making traction from *above* the elbow by means of a bandage or towel, with the *elbow bent.* After the extension has been continued three or four minutes, the hand and bent forearm should be turned *outwards,* when the head of the dislocated bone will slip, generally with an audible snap, or may be pushed, into its position. The most certain plan, however, is with the towels, as first described. But the other methods may be tried on occasions when towels are not immediately available. They are, however, more adapted to replace the arm-bone when, as sometimes happens, it has been dislocated a second or third time in the same person.

A person who has repeatedly dislocated his shoulder—and the accident is always more liable to happen after having once occurred—may, if he have courage to bear a little pain for a few minutes, even manage to reduce it himself. By getting his arm over the top rail of a gate (which, if square,



should be first covered by some article of clothing), seizing one of the lower rails with the hand of the injured arm, letting the whole weight of the body hang over the other side of the gate, and then making some movement to change the position of the body while its weight still tells on the top bar, the bone will probably slip into its place. The principle is exactly the same as when the heel is put into the armpit, and the arm pulled. The head or top of the arm-bone is moved towards the edge of the socket from which it has escaped, and thus placed the muscles pull it into its place. The position is shown above.

Dislocation of the Elbow.—This may occur backwards, or to either side, and one or both bones of the forearm may be displaced. In a case of complete dislocation there is much deformity and swelling, the joint being bent at a right angle, and remaining almost immovable, while the thumb and outer surface of the wrist are turned forwards. In dislocation to one side there is of course more deformity on that side. In dislocation of one bone only the deformity is less. Dislocation of the elbow is chiefly to be distinguished from fractures about the joint by the absence of grating movement.

Treatment.—One person must take firm hold of and steady the upper arm above the elbow. Another must pull from the wrist. After extension for about two minutes, the elbow must be suddenly bent by the person holding the wrist, when the bones will resume their natural position.

As above mentioned, dislocations of the elbow are distinguished from fractures by the absence of grating; but it often happens that in injuries of this joint one or other form of dislocation is combined with one or other form of fracture, especially of the bones forming the point, and side prominences of the elbow. This complicates the case; splints are generally required, and the services of a surgeon should be procured. Until professional aid is obtained, the best plan is to lay the elbow, bent almost at right angles, on a pillow, and apply a cold lotion.

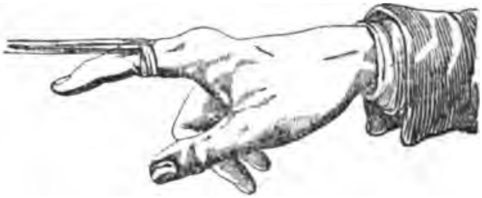
PARTIAL DISLOCATION OF THE ELBOW IN CHILDREN.—The forearm of children from a fall, or drag upon the wrist, is frequently subject to a peculiar displacement caused by the head of the smaller bone (or *radius*) slipping forward and lodging against the front part of the bone of the arm. The arm when thus injured hangs down, and the hand is supported by the other. The hand is also turned inwards and downwards. All attempts to move the hand give considerable pain. The position which the child thus injured naturally assumes, as the most easy posture, namely, supporting the injured forearm with the sound hand, gives an appearance at first sight very much resembling the characteristic posture assumed by persons with fractured collar-bone. But on feeling the latter bone it will be found there is no fracture there. To remedy this accident at once, take hold of the upper arm firmly with the left hand, and the patient's hand with the right hand, in such a manner that the back of the patient's hand lies in the palm of the operator's. Now bend the elbow joint quickly, turning the forearm outwards, so as to bring the palm of the patient's hand to front his upper arm. A crack will probably be felt, and the child will be able to use the arm.

DISLOCATION OF THE WRIST.—This may be distinguished by the altered position of the hand, which is thrown backwards or forwards, or is twisted, if only one bone is dislocated.

Treatment.—Simple extension of the hand, and if the natural position is not retained the application of splints as for fractured forearm. Fractures of the lower end of the forearm are, indeed, often mistaken for dislocations, and in all cases of doubt, after extension, it will be best to apply splints as for fracture. (*Vide* FRACTURE OF THE FOREARM.)

DISLOCATION OF THE THUMB AND FINGERS.—These accidents are known by the deformity present, and in consequence of the strength and tightness of the ligatures fixing the joints such injuries are often difficult to treat.

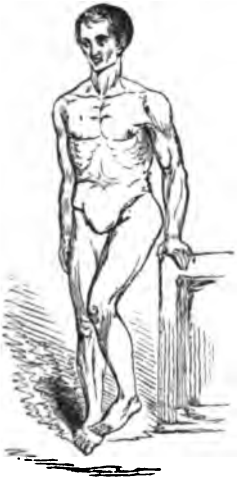
Treatment.—If the dislocated bone does not return into position by simple extension with the hand, a firm hold must be obtained by a piece of tape fastened as represented above. Then the wrist must be held by one person, while another pulls the tape till the bone slips into its place.



DISLOCATION OF THE HIP JOINT.—There are four principal varieties of this dislocation, but the dislocation *upwards* is the most frequent.

Symptoms.—The injured limb is from one inch to one inch and a half *shorter* than the other. The toes rest on the upper surface of the foot, or on the instep of the sound limb, the knee is turned inwards, and is a little advanced on its fellow, the hip generally appears flattened, but the dislocated head of the thigh bone forms an unnatural prominence above and behind the situation of the hip joint, the limb cannot be moved, and if force is applied to straighten the limb the patient's back becomes arched.

Fracture near the head of the thigh-bone is distinguished by these differences: In fracture the limb can be moved more freely; it is turned outwards instead of inwards; it can be drawn down to its natural level, but becomes again shortened as soon as the extension is discontinued; whereas a dislocated bone requires forcible extension to place the limb in its natural position, from which it does not again escape. The position of the limb, when the hip is dislocated upwards, is shown below, and may be compared with *fracture*, p. 415.



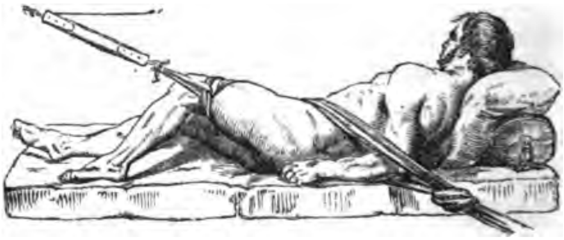
Treatment.—Place the patient on his back on the floor, and while he is firmly held by the shoulders, grasp the foot and ankle firmly, and by gradual extension parallel with the body, and rotation of the limb outwards at the same time, the head of the bone, if recently dislocated, will probably slip into its place.

Or the patient's body being well steadied by an assistant holding the opposite hip, the operator seizes the ankle of the injured limb with one hand and the knee with the other, bending the leg on the ham, and the thigh on the abdomen as much as possible. Then the knee is made to take a wide sweep *outwards* as far as it will go, when the whole limb is brought down to its natural position, being at the same time straightened.

Either measure will be more likely to succeed if the patient can be put under the influence of chloroform. If chloroform is not available, one grain of tartar emetic may be given in an ounce of water every half-hour till nausea is produced, and which is attended with relaxation of the muscles.

But if these methods do not succeed more force must be used. A strong towel or sheet must be passed round the upper part of the thigh, and so adjusted that it does not interfere with or press on the private parts. This towel must be secured to a hook or ring in the wall, or to a tree. A roller must next be applied over the thigh, and then another towel or sheet to the same part. When all is prepared extension must be firmly but gradually made, so as to draw the thigh across the opposite one a little above the knee. After a couple of minutes the knee should be gently turned, and the head, or upper part of the thigh lifted up, when the head of the bone will perhaps return into its socket. But many such cases require hot baths or chloroform to relax the muscles, and often pulleys to apply more equable force, under which circumstances the operation will require the skill of a surgeon. Similarly in most other forms of the dislocation of this bone, special knowledge is necessary, so that no other variety is here described.

The position for the reduction of a dislocated hip is shown below.



After the reduction of the hip the knees should be tied together, and the patient should be kept in bed for some days. After such injuries it sometimes happens that the patient is unable to make water. Fomentations over the bowels will perhaps relieve this condition, otherwise the catheter must be passed (*vide* p. 349).

When no attempt can be made to reduce a dislocated hip, or when attempts fail, the patient should lie on the back, and his thighs should be fastened together with a broad bandage.

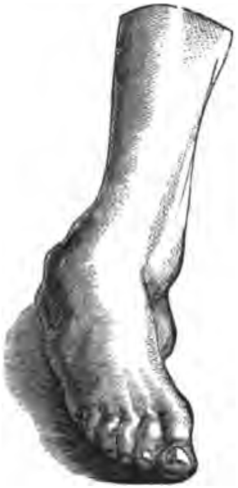
DISLOCATION OF THE KNEE CAP.—This bone may be dislocated either inwards or outwards, most frequently in the latter direction. In some cases it is half twisted on its axis, so that its outer or inner edge rests upon the front of the lower extremity of the thigh-bone. The symptoms are that the knee cannot be bent, and the bone may be felt in its new position. It should be replaced by straightening and raising the leg, so as to relax the muscles in front, then lifting the bone with the thumb and fingers into the middle of the joint, after which the patient must be put to bed, and fomentations should be employed to prevent inflammation. A twisted knee cap is the worst form of this injury, and it occasionally becomes so immovably fixed that it cannot be replaced.

DISLOCATION OF THE KNEE JOINT.—The leg may be displaced from the knee forwards, backwards, or to either side, but owing to the large extent of the opposed surfaces forming the joint, and to the strength of the ligaments, dislocation of the knee is always partial. These injuries are usually caused by violent and sudden twists of the joint. In lateral displacement there is an unnatural projection of the inner or outer extremity (condyle) of the thigh-bone on the one side, and a projection of the inner or outer extremity of the leg-bone on the other, while the foot and leg are generally more or less twisted. Dislocations of the knee joint, either forwards or backwards, are more serious injuries, and are always associated with much tearing of ligaments and soft parts surrounding the joint. In the backward dislocation the lower end of the thigh-bone projects in front, and the hollow at the back of the joint is occupied by the displaced head of the leg-bone. The dislocation forwards is a rare form of injury, and is always accompanied by much laceration of the soft parts, and often by rupture of the ham-string tendons.

Treatment.—The thigh should be fixed by being tightly held while the patient lies on his back. Then extension should be made by pulling steadily from the ankle. After the parts have resumed the natural position, fomentations should be applied, and the patient should be kept in bed for at least three weeks.

DISLOCATION OF THE SEMILUNAR CARTILAGES OF THE KNEE JOINT.—The semilunar cartilages are two flat gristly structures of a horseshoe shape, which are fixed to the margins of the upper surface of the leg-bone. One or both of these may, in consequence of a sprain or twist, become detached and slip between the opposed surfaces of the thigh and leg bones. The symptoms are sudden, severe, *sickening* pain in the knee, and inability to walk. But the leg, though stiff and painful when the person is erect, can be generally moved when he lies down. After the accident the knee begins to swell, and remains swollen for some days. If the patient is seen immediately, before the joint begins to swell, reduction of the cartilage may be readily effected by first extending the leg, and then suddenly bending it backwards until the heel touches the corresponding buttock, the other hand of the operator being placed on the front of the knee. Afterwards fomentations and rest for some time will be necessary. If the patient is not seen until the knee is swollen, fomentations and rest should be had recourse to, and the cartilages will gradually assume their natural position; but the patient should not attempt to walk until all pain and swelling have ceased. This injury having once happened is very liable to recur from slight causes, and the person should wear a bandage or tight knee-cap for months afterwards.

DISLOCATION OF THE ANKLE.—This is generally caused by jumping from heights, or from carriages in motion, and is nearly always complicated with fracture of the small bone of the leg above the ankle. The dislocation may be either inwards or outwards, and the swelling on either side will be the chief distinguishing mark. The dislocation inwards, involving fracture of the small bone on the outside, is, however, the most common variety. The shape of the foot will then be as below, presenting a hollow on the outer side at the site of the fracture of the small bone, the sole of the foot being turned rather inwards.



Treatment.—The person should be placed on his back, with the thigh raised and the knee bent. Then, while an assistant steadies the knee, the operator must grasp the instep with one hand and the heel with the other, and pull gradually and firmly till he has restored the parts to a natural shape. Then the limb should be bound up with splints on each side, as for a fractured leg; care being taken to keep the great toe on a line with the inner side of the knee-pan. The patient should lie on his back, although some surgeons prefer treating this accident by placing the patient on the side corresponding with the injury, the knee being bent. (*Vide* FRACTURES OF THE LEG, p. 419.)

DISLOCATIONS OF THE BONES OF THE FOOT.—Such injuries are the result of great violence, are mostly attended with fractures, and will require the attention of a surgeon. Until this can be obtained the parts should be placed as far as possible in the natural position, perfect rest on a pillow should be enjoined, and fomentations applied.

DROWNING.—The injurious effects of submersion in water, if prolonged, may be twofold. If the water is warm, the principal hurtful effect will be the suspension of respiration, or suffocation; but if, as is often the case, the water be cold enough to extract heat from the body, a very powerful depressing action is added. As regards the *asphyxia*, or 'suffocation,' caused by suspension of respiration, it is of exactly the same character, whether it has been induced by drowning, by hanging, or by breathing air deficient in oxygen. In the treatment of all these accidents *Artificial Respiration* is the means worthy of the greatest confidence, and this should be promptly resorted to and perseveringly continued.

Leaving to others the task of stripping off wet clothing and wiping the body dry, the most intelligent person present should act according to the directions given below.

The following rules have been kindly furnished by the Secretary of the Royal Humane Society, and are those published by the Society for the year 1874—after special communication with, and experiments by, a committee of the members of the Medico-Chirurgical Society of London:—

Send immediately for medical assistance, blankets, and dry clothing, but proceed to treat the patient INSTANTLY, securing as much fresh air as possible.

The points to be aimed at are—first, and immediately, the *Restoration of Breathing*; and secondly, after breathing is restored, the *Promotion of Warmth and Circulation.*

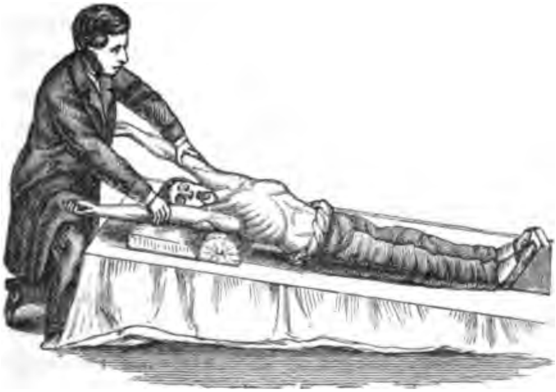
The efforts to restore life must be persevered in until the arrival of medical assistance, or until the pulse and breathing have ceased for at least an hour.

TREATMENT TO RESTORE NATURAL BREATHING.

1. *To Maintain a Free Entrance of Air into the Windpipe.*—Cleanse the mouth and nostrils; open the mouth; draw forward the patient's tongue, and keep it forward: an elastic band over the tongue and under the chin will answer this purpose. Remove all tight clothing from about the neck and chest.

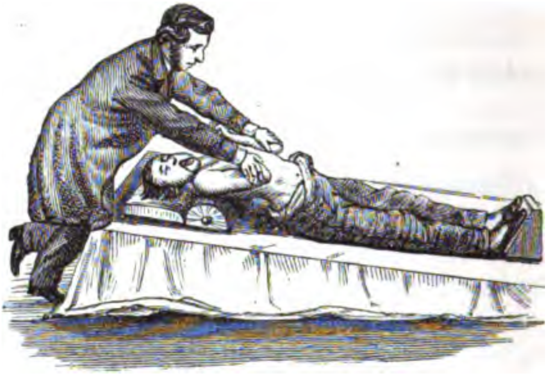
2. *To Adjust the Patient's Position.*—Place the patient on his back on a flat surface, inclined a little from the feet upwards; raise and support the head and shoulders on a small firm cushion or folded article of dress placed under the shoulder-blades.

3. *To Imitate the Movements of Breathing.*—Grasp the patient's arms just above the elbows, and draw the arms gently and steadily upwards, until they meet above the head



INSPIRATION.

(this is for the purpose of drawing air into the lungs); and keep the arms in that position for two seconds. Then turn



EXPIRATION.

down the patient's arms, and press them gently and firmly for two seconds against the sides of the chest: (*vide* preceding engravings). This is with the object of pressing air out of the lungs. Pressure on the breast-bone will aid in effecting this requirement.

Repeat these measures alternately, deliberately, and perseveringly, fifteen times in a minute, until a spontaneous effort to respire is perceived, immediately upon which cease to imitate the movements of breathing, and proceed to INDUCE CIRCULATION AND WARMTH (*as below*).

Should a warm bath be procurable, the body may be placed in it up to the neck, continuing to imitate the movements of breathing. Raise the body in twenty seconds in a sitting position, and dash cold water against the chest and face, and pass ammonia under the nose. The patient should not be kept in the warm bath longer than five or six minutes.

4. *To Excite Inspiration.*—During the employment of the above method excite the nostrils with snuff or smelling-

salts, or tickle the throat with a feather. Rub the chest and face briskly, and dash cold and hot water alternately on them.

TREATMENT AFTER NATURAL BREATHING HAS BEEN RESTORED.

5. *To Induce Circulation and Warmth.*—Wrap the patient in dry blankets and commence rubbing the limbs upwards, firmly and energetically. The friction must be continued under the blankets or over the dry clothing.

Promote the warmth of the body by the application of hot flannels, bottles, or bladders of hot water, heated bricks, &c., to the pit of the stomach, the armpits, between the thighs, and to the soles of the feet. Warm clothing may generally be obtained from bystanders.

On the restoration of life, when the power of swallowing has returned, a teaspoonful of warm water, small quantities of wine, warm brandy and water, or coffee should be given. The patient should be kept in bed, and a disposition to sleep encouraged. During reaction large mustard plasters to the chest and below the shoulders will greatly relieve the distressed breathing.

APPEARANCES WHICH GENERALLY INDICATE DEATH.—There is no breathing or heart's action; the eyelids are generally half-closed; the pupils dilated; the jaws clenched; the fingers semi-contracted; the tongue appearing between the teeth, and the mouth and nostrils are covered with a frothy mucus. Coldness and pallor of surface increase.

Cautions.—Prevent unnecessary crowding of persons round the body, especially if in an apartment.

Avoid rough usage, and do not allow the body to remain on the back unless the tongue is secured.

Under no circumstances hold the body up by the feet.

FEET, TENDERNESS OF THE.—Some persons suffer much from tenderness of the feet, and are unable to wear boots sufficiently thick to protect from jungle, thorns, &c.

For the relief of this annoying condition nothing is better than bathing the feet daily in strong salt and water. Tender feet are often found smelling offensively. Salt and water bathing will also tend to correct this, especially when aided by perfect cleanliness, and clean socks once if not twice daily.

FEET, BLISTERS OF THE.—Blisters are very likely to occur on the toes or heels, from new badly-fitting boots or socks, or from extraordinary walking exercise. To prevent this on pedestrian excursions, thin woollen hose and a well-made boot with broad sole, so cut that the upper leather does not unduly compress the foot, are desirable. When blisters form, if small, they should be let alone, and be protected from being rubbed, when after a few days the contained water may be absorbed, the upper layer of the skin peeling off, leaving a healed surface beneath. If larger, or if they appear likely to burst, a very small puncture should be made with a sharp lancet at the most dependent part, and the water allowed to drain out. But none of the skin should be removed. Then some simple ointment spread on lint should be applied, and secured by strips of sticking plaster. If walking must be performed while blisters are present, it will be necessary to take all pressure away from the part, by cutting a hole in the leather of the shoe over the blister.

Ulcers of the Toes and Heels sometimes result from neglected blisters, or from the person being in a bad state of health. These are sometimes troublesome to heal, requiring perfect rest of the part, great cleanliness, dressing with simple ointment (Recipe 86), and attention to the general health.

[Often such ulcers require a stimulating dressing, and when simple dressing, as above, does not suit, the ointment (Recipe 93) should be procured.]

Corns and Bunions sometimes suppurate from the pressure of the boot, or as the effect of injury. They then require the removal of all pressure, rest, poultices, and afterwards healing ointment (Recipe 86).

FOREIGN BODIES LODGED IN THE PERSON.—The term 'foreign body' is applied to any substance which penetrates the surface of the body either by the natural passages or through the skin. Shot, bullets, arrow-heads, splinters of wood, pieces of iron, scraps of cloth, buttons, and many other substances often become foreign bodies in the person. The force of a shot or other missile may often splinter a bone, when the splinter, dying, ceases to be a portion of the living body, and then acts as an irritant foreign body.

FOREIGN BODIES IN THE NOSE.—Such articles as peas, beans, small stones, slate pencil, insects, may be thrust into the nostrils by children, or may be accidentally inserted. They may be frequently discharged by compressing the other nostril with the fingers, and then blowing forcibly through the obstructed nostril. If this does not succeed, snuff may be given to excite sneezing, or the nostrils may be syringed with warm water. These measures failing, a mustard and water emetic may be given, and when vomiting occurs the mouth should be stopped by the hand. A rush of fluid will then take place from the stomach through the nose, and probably dislodge the foreign substance. If no effect is thus produced, a probe or piece of wire, bent into the form of a hook, must be passed *above* the substance so as to hook it down. Or it may sometimes be seized with a pair of forceps. Care must be taken not to push the foreign body backwards, and digging attempts *upwards* towards the head should be avoided. When a foreign body cannot be extracted it will frequently work out if left alone.

FOREIGN BODIES IN THE EARS.—Similar objects may also penetrate the ears, and are to be removed by syringing the ear, or by means of forceps, or a hooked wire or scoop. Insects may be generally removed, or at least killed, and the pain they create therefore diminished, by pouring a little salad oil into the ear; or if oil is not at hand a saturated solution of salt and water. In many cases syringing the ear with warm water may be tried, unless the foreign body is something which might swell from moisture, as a pea, for instance. Great care must be taken not to injure the drum of the ear by pushing the foreign body, or the probe or wire used for its extraction, inwards—or by too forcible syringing. In some cases a probe end, with a little cotton wool attached, dipped in carpenter's glue, has been introduced and held firmly against the foreign substance until the glue dries, or for about half an hour, when all was removed together. In this manner a glass bead has been extracted, which could not otherwise be taken out. Perhaps the best plan and most applicable to all substances is the use of a wire loop. Take a piece of fine flexible wire, double it, and then pass the loop into the ear, keeping it against the upper surface, then lower it gently until the foreign body is within the loop and then extract. This plan offers the advantage that the loop is less liable to injure the internal part of the ear, than either forceps or probes. After the removal of a foreign body from the ear, if much manipulation or syringing has been required, the ear is painful, and sensitive to cold, from which it should be carefully guarded by the use of cotton wool for some days; otherwise inflammation or abscess might occur.

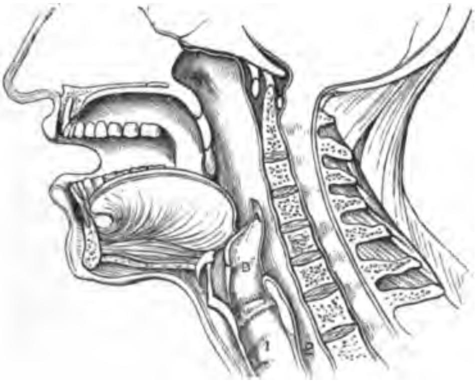
FOREIGN BODIES IN THE EYES may be often removed by simply raising the upper eyelid, drawing it down over the lower, and allowing the lids to separate themselves. Blowing the nose vigorously will sometimes effect removal. Otherwise the eye must be opened, and the offending substance removed with the corner of a handkerchief, or camel-hair brush. But if the lodgment has taken place under the upper lid, the eyelid must be turned inside out. This is done by placing a probe on its middle *horizontally*, seizing the lashes with the fingers, and turning the lid back over the probe, when the inside of the lid will be exposed, and the substance may be removed.

When lime has got into the eye, its effects are irritant and caustic, and the treatment should be prompt. The eye should be held forcibly open, and every particle picked away, the eye being frequently washed with vinegar and water, in the proportion of one-third of the former to two of the latter.

In cases where a particle, as of metal for instance, is so firmly fixed in the *cornea*, or central part of the eye, that it cannot be readily detached, it should be left to separate by the natural process of inflammation which will be set up. If the foreign body be a piece of iron (as from a blacksmith's forge), the surface of the eye should be bathed with a solution of sulphate of copper, of the strength of three grains of the sulphate to one ounce of water. This may be applied with a camel-hair brush, or with a syringe, and will tend to dissolve and loosen the iron. Sometimes particles of iron or steel may be removed by a magnet.

After the removal of any foreign body from the eye, a drop of salad oil placed in the eye will relieve the distressing smarting so usually present.

FOREIGN BODIES IN THE THROAT AND GULLET.— People are sometimes choked, and have been killed, by portions of food sticking in the gullet and preventing the air passing into the windpipe. As in the accompanying diagram



showing a section of the parts, the windpipe (1) and the gullet (2) lie close together, the entrance to the former being protected by a little valve A, the *epiglottis*. This remains open and upright except when the act of swallowing is performed, when it shuts down over the opening into the air-passage or windpipe B, allowing the food to glide over it. But when a person eats quickly or carelessly, pieces of food may accidentally pass beneath the valve into the windpipe, a circumstance popularly spoken of as 'going the wrong way.' Or a piece of food may lodge above the gullet and epiglottis, shutting the latter down, and thus producing suffocation. This may happen, for instance, when masticating stringy meat. Two pieces may be attached like chain shot; one piece is swallowed while the other remains entangled in the teeth, and the connecting string shuts down the little valve at the top of the windpipe, and stops the breathing. The effects are sudden spasmodic cough, protrusion of the eyes from the sockets, blood or froth issuing from the mouth and nose, the person turning black in the face and falling down insensible.

Treatment.—Place the patient where the best light falls from a window or lamp into the mouth, and then boldly and quickly examine the back of the throat and the base of the tongue, by passing the forefinger well down. Very probably the foreign mass may be touched at once, and extracted by the fingers. This will be facilitated by directing that the tongue be put forward, well out of the mouth, and there retained, being grasped by the patient's own fingers covered with a handkerchief. This procedure mechanically draws forward the arches of the palate, and allows the operator to sweep his finger well across from one side to the other of the throat.

Similarly, when a foreign substance has become lodged in the gullet of a child, or in other words, when a child 'chokes,' the forefinger should be instantly passed into the throat, and the substance, if possible, hooked up or pushed down. If the finger does not reach the foreign body, a sharp blow on the child's back should be given with the flat of the hand. It will add force to the blow if the child is taken between the knees, so as to compress the belly; otherwise much of the impetus of the blow is lost by transmission to the yielding walls of the abdomen.

Thus fish bones, or other bones, or various foreign bodies lodged high up in the gullet may often be removed by the fingers; or in other instances they may be laid hold of with a long pair of curved forceps. Or they may be, perhaps, brought up by the vomiting occasioned by passing the fingers into the throat in their search, or they may sometimes be dislodged by pressure with the fingers outside. If lodged lower down, they may sometimes be impelled onwards into the stomach by swallowing large pieces of food, or they may probably be ejected by an emetic (Recipe 77). Or they may perhaps be softened or dissolved by repeatedly swallowing dilute mineral acid. If these measures fail, a *probang* must be passed to push the intruding substance into the stomach. This instrument is a long stick of whalebone slightly bent, with a piece of sponge attached to one end, and a small hook to the other, as below. If such an instrument is not available, a substitute may be extemporised as follows:—Obtain a slip of whalebone or cane, and tie firmly to one end of it a knob of sponge about the size of a marble. The patient is made to sit with the head well thrown back, and the tongue should be put out, when the operator introduces the probang, sponge end first, into the throat *so as to touch the back part,* and then pushes it gently onwards and downwards towards the stomach, so as to displace and send before it the foreign mass into the stomach. Or the hooked end may be passed,

under the hope of bringing the foreign body upwards. Or a number of loops of thread may be attached to the hook and passed down the throat, as foreign substances have sometimes been thus caught and brought up when other means have failed. But these operations can scarcely be performed except by a surgeon; although they should be tried, rather than a sufferer be left without attempts at relief. After removal, a sense of soreness of the throat and gullet often remains, leading the person to suspect the substance still there.

Needles swallowed, if not easily removable, should be left alone. They will probably work out harmlessly through some part of the skin.

FOREIGN BODIES IN THE WINDPIPE cause difficulty of breathing and violent cough, and are sometimes expelled by the latter. If the patient is a child, he, or she, should be held up by the legs with the head down, and the back should be gently tapped. If an adult, the patient should be placed on a slanting board as far as possible in the same position, and the back slapped. Coins and similarly shaped bodies have thus been got rid of. If these means do not succeed, and difficulty of breathing is urgent, nothing but a surgical operation will afford a chance of relief. Otherwise, if there are no urgent symptoms the patient must be kept quiet, and the foreign substance becoming coated with mucus, or becoming softened, may be coughed up.

FOREIGN BODIES IN THE STOMACH.—When any foreign substance has passed into the stomach, as, for example, coin, a marble, a piece of glass, or artificial teeth, the object is to allow it to pass through the intestines well enveloped in food, and as it passes on in fæcal matter. Therefore no purgatives should be given. The person should abstain from fluids, but otherwise the usual diet should be taken. A change of diet to rice pudding, cheese, and hard-boiled eggs, with the view of producing hard consistent stools, enveloped in which the foreign body may pass without injury to the bowels, is sometimes recommended. But such changes of food will as often as not, in the first instance, induce looseness of the bowels, and thus do injury. If metal has been swallowed, nothing acid should be taken, as it might dissolve the metal and produce poisonous compounds.

Leeches, when applied to the interior of the mouth, or when present in water, have sometimes been swallowed, giving rise to very unpleasant symptoms. When this accident happens, a tablespoonful of common salt dissolved in four ounces of water should be immediately taken, and repeated in half an hour, when the leech will be probably killed, or vomited up. If salt is not at hand, wine taken gradually, in the proportion of half a wineglassful every ten minutes, is a good remedy.

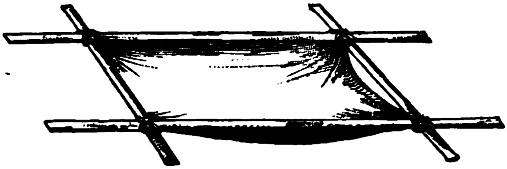
FOREIGN BODIES IN THE SKIN.—Splinters of wood, thorns, needles, fish hooks, nails, &c., may be embedded in the skin. Splinters of wood or other similar shaped substances should be, if possible, seized by forceps and dragged out. To accomplish this, slight enlargement of the wound with a lancet may be necessary. Or they must be left a day or two and the part poulticed, when becoming loose, they may be more easily extracted. Needles and fish hooks in the person will be generally more easily extracted by pushing them out by the points, care being taken that they do not break.

FOREIGN BODIES UNDER THE NAILS. — Thorns, splinters of wood, &c., embedded in this position must be extracted after gradually paring down the nail until the foreign body can be seized by forceps. If this cannot be effected after the nail is pared to the quick, it will be better to wait for a day, when probably the intruding substance will be loosened, and may be extracted.

FOREIGN BODIES IN OTHER PARTS.—Foreign bodies sometimes become impacted in the private parts or fundament, and if they cannot be extracted easily, the assistance of a surgeon will certainly be required.

FRACTURED OR BROKEN BONES.—These accidents are spoken of as *simple fractures,* when there is no external wound leading from the surface of the skin to the injured bone. When there is such a wound they are called *compound fractures.* Compound fractures are much more dangerous than simple fractures, and are also more troublesome, as, in addition to treating the fracture, the wound must be cleansed and dressed daily, involving in every case different adjustment of splints and bandages, in order to get at the wound easily without interfering with or moving the fractured bone.

The principles of treatment of all fractures, are to place and retain the fragments in perfect rest in their natural position, until they have united. But before this can be done there is generally the management of the patient immediately after the accident, and the precautions to be taken in removal to home or hospital, which are matters of great importance. Much harm is often done by moving the patient without taking any preliminary means to protect the injured limb, and especially so in fracture of the lower extremities. The first thing to do before allowing the patient to be moved, is to expose the part, and ascertain the nature of the injury, and the clothes, or boots, should be *cut,* not *pulled,* off. If the patient has now to be removed, this must be done without disturbing the broken limb. If the leg or thigh be broken, a hurdle, or shutter, or door, or *charpai* covered with straw, coats, or blankets may be converted into an excellent litter, which should be laid down by the sufferer's side, and he can then be gently and quickly lifted upon it by just as many persons as are sufficient to raise him up a very little from the ground—and by no more—as the greater the number of assistants the less likely are they to act efficiently together. The shutter or hurdle should be carried by the hand, and the bearers should 'keep step' to avoid shaking. If poles are procurable they may be fixed beneath each end of the litter, which will thus be carried long distances more easily. If neither hurdle, door, *charpai*, nor shutter can be obtained, a good substitute may be made by fastening four stout poles together, and tying a blanket securely to them, as shown below.



Having got the person on the shutter, or litter, it is a good plan to bring the sound limb close to the broken one, and to tie them together with handkerchiefs to prevent motion. Pads of straw may also be useful. As a rule, persons with fractured limbs should not be subjected to the risk of injury from riding in wheeled vehicles, in which they may be obliged to sit up, particularly over a rough road.

When any part of the arm is broken, the least painful and injurious position is resting the forearm in a broad handkerchief slung from the neck with the elbow bent, and with a small pillow or pad between the arm and the side. In most instances, a person so injured will be able to walk with less pain than he would suffer from movement in a carriage. If the forearm only is injured, it should be placed in a sling.

Lastly, the surface on which the patient with a fractured limb has to lie during the treatment, should be firm and level, and therefore no feather or very soft bed should be allowed.

In the *treatment* of fractured bones the following articles are required:—Splints, bandages, pads, tapes, sometimes oiled silk, and simple ointment. Splints may be made of wood, or, except for the thigh, of gutta percha, of thick pasteboard, of newspapers, of bandboxes, or even of strong straw tied into a bundle. Bandages should be made of linen or calico (*vide* p. 350), or of old sheeting. Pads may be formed of pieces of blanket cut into the shape of the splints, or of cotton wool, or tow, or of cocoa-nut fibre, chaff, or husks of grain in bags. When adjusting splints, much care must be taken that there is no great pressure on prominent parts, as the bones of the ankle or elbow; otherwise blisters and sores will form. This is to be effected by making the pads fit the contour of the limb, and they may be fitted on the limb of another person, or on the sound limb. Although frequent moving of splints when once applied to a fracture is not desirable, it is still necessary to ascertain whether any wound is forming from pressure, or whether blisters, as sometimes occurs, have formed from the violence of the injury. It will, therefore, be necessary to move the splints with great care about the third day, to snip blisters with a pair of scissors, laying a little simple dressing spread on soft rag over the part, but *not* removing any wrinkled skin, and if pressure has occurred, to readjust the splints so as to avoid it. Similar attention will be required in another day or two. If the splints are moved with care, no motion of the fractured parts need be entailed. As a rule, if there is much swelling of the parts, broken limbs should not be bound on splints for the first three or four days. If in such a condition, bandaged up tightly much pain results, and if the bandages are not slackened, serious injury or mortification may follow. It is best at first, if there is much swelling, to lay the broken limb in as comfortable a posture as possible, and as nearly as can be in its natural direction, and it may be lightly bound to a single splint merely for the purpose of keeping it steady. The arm, whether broken above or below the elbow, will lie most comfortably half bent on a pillow. The thigh or leg will rest most easily on the outer side, with the knee bent.

It will always be proper to apply fomentation or lotion while swelling continues (*vide* p. 492). Speaking generally, all fractures should remain in splints during one month, after which sufficient support may be obtained by a starch bandage (Recipe 111), or by plaster spread on strips of leather (Recipe 112).

When it is necessary to fix a limb with *compound fracture* on a splint, the seat of the injury should, as far as possible, be left uncovered by the bandage. If it is requisite, a second bandage may be applied over the first one to retain poultices, dressings, &c. In this way local treatment may be used without disturbing the position of the limb, and the progress of the wound can be watched without causing unnecessary pain or discomfort to the patient.

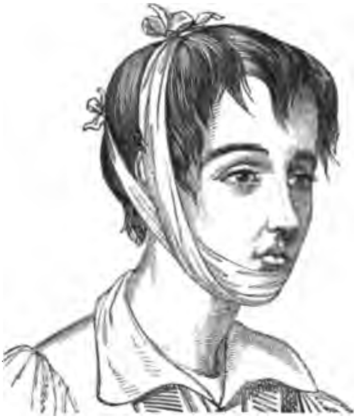
The usual *symptoms* of all fractures are pain, swelling, grating of the broken ends of the bone on movement, and more or less inability to move the limb. But sometimes, particularly in children, bones are bent, not broken, when, although there will be no grating, the deformity or bent shape of the limb will sufficiently indicate the injury. For the signs distinguishing fracture from dislocation, *vide* DISLOCATION, p. 377.

FRACTURE OF THE SKULL.—If it be a simple fracture, or crack in the bones of the skull, nothing more will be proper or required beyond attention to the external wound, as mentioned in the paragraph on WOUNDS OF THE SCALP. Such injuries are, however, generally attended by the condition described as *concussion*, and this state, if present, must be treated as mentioned under that head. If any portion of the bones of the skull is broken and *depressed* below the other part, the symptoms described under the head COMPRESSION OF THE BRAIN, such as insensibility, heavy laboured breathing, and perhaps dilated pupils, will be present; and the operation of trepanning will probably be required. When, after an injury to the head, there is bleeding or escape of watery fluid from the ears, in addition to insensibility and laboured breathing, fracture of the base of the skull has probably taken place, and the case generally ends fatally. In all injuries of the head perfect rest from the first should be insisted upon, with a darkened room, low diet, purgative medicines, and abstinence from all stimulants.

FRACTURE OF THE BONES OF THE NOSE.—This is known by the disfigurement, the nose being flattened, and by the grating of the broken bones when the nose is raised to its natural position by the fingers. The bones should be pushed into their proper place by passing a pair of forceps or piece of wood into the nostrils, and lifting up the fractured parts. If they do not remain *in situ*, a plug of lint must be placed in the nostril. If the fracture is compound, that is, presenting an external wound, and any splinters of bone are loose, they should be removed with the forceps. Bleeding, if violent and protracted, must be stopped, as mentioned in the paragraph on BLEEDING FROM THE NOSE (p. 363).

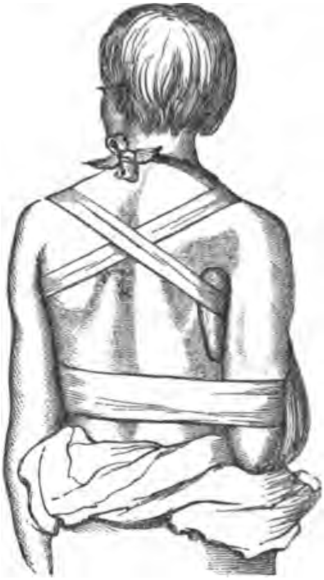
FRACTURE OF THE LOWER JAW.—This injury usually occurs at about the middle of one side of the part in which the teeth are placed, and is known by pain, swelling, inability to move the jaw properly, and irregularity of the teeth; the anterior or front teeth being drawn *down*, and the back teeth *up*, by the action of the muscles. On moving the jaw grating will be felt. If the fracture is compound, there will also be bleeding, and probably one or more teeth may be knocked out or loosened.

Treatment.—A piece of cork an inch and a half long, half an inch wide, and half an inch thick, should be placed between the back teeth on each side. Then a piece of gutta percha, or thick pasteboard softened by hot water, should be accurately fitted to the jaw (previously shaved, if necessary), and extending from ear to ear. This must be secured by a four-tailed bandage, made by taking a yard and a half of calico roller about four inches wide, tearing each end longitudinally, so as to leave about eight inches in the middle, in which should be a slit for the reception of the chin. Two of the tails are then tied over the crown of the head, and two at the back. The mouth is thus closed, and the patient must be fed entirely on fluids for the first fortnight. The cure occupies about five weeks. Below is a sketch showing the bandage placed in position.



FRACTURE OF THE COLLAR-BONE.—This is generally caused by falls on the arm or shoulder. The person cannot raise the arm upwards towards the head; the broken part of the bone may be seen and felt prominent; grating of the broken ends occurs on movement of the shoulder; the shoulder is flatter than the other, and falls forwards and inwards; the person supports his elbow and forearm with the opposite hand and forearm. This accident frequently occurs to children.

Treatment.—Place a big cone-shaped pad in the armpit, then bandage the shoulders so as to draw them backwards. This is effected by a figure of ∞ bandage, passing round each shoulder and crossing behind. The arm must be then bound to the side by another bandage, and lastly, the elbow must be supported by a handkerchief, used as a sling round the neck. Thus the shoulder is kept *up* by the sling, *out* by the pad, and *back* by the bandage, bringing the broken ends of the collar-bone into position. The bandage should be worn a month, after which plaster on strips of leather (Recipe 112) may be applied over the injured part. The following diagram represents a broken collar-bone bandaged.



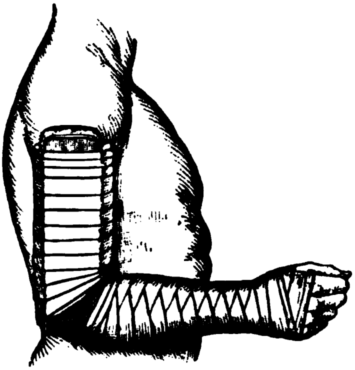
It is a very difficult matter to keep this bone, when broken, at perfect rest and in exact position, unless the patient lies in bed on his back, with his arms confined to the side of the body, and keeps his head quite still. But such a position maintained for days, for such an injury, would be to most people intolerable. With the bandages, as above described, a broken collar-bone unites speedily and strongly, although some little deformity must be expected.

FRACTURE OF THE ARM-BONE OR HUMERUS.—This may be broken at or near the upper portion, or in the centre, or nearer the elbow. In the first case the arm is slightly shortened, and the broken head of the bone may be felt in the front of the armpit, while the shoulder, when compared with the other, will be seen to have lost its rounded form. Grating will also be felt when the elbow is pulled downwards, so as to restore the broken parts to their natural position.

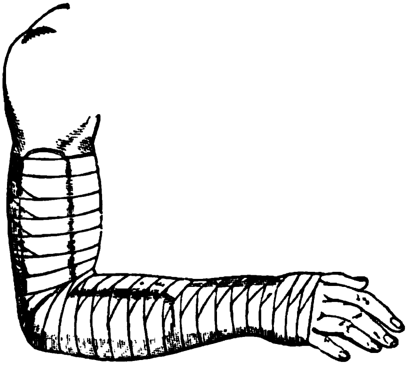
FRACTURE OF THE MIDDLE OF THE ARM-BONE is more easily detected from the deformity, the grating, and the inability to use the arm.

FRACTURE OF THE LOWER PART OF THE ARM will be known by the elbow being drawn backwards, by its being restored to the natural position by pulling the hand, and by the grating.

Treatment.—In fracture of the upper part, or middle of the forearm, the limb must be first restored to the natural position, by pulling or extension of the elbow. Then four carefully padded splints should be placed, one in front, one behind, and one at each side. These splints must be long enough to reach from the top to the bottom of the arm, and the *outside* one should be the longest, as it should rest above on the shoulder, and below on the outside of the elbow. Great care must be taken that this splint does not press too much on the prominence of the elbow—to be avoided by well padding opposite the hollow of the arm *above* the elbow. The skin of the armpit and the inside of the elbow, is also liable to be frayed by the inside splint, which must be avoided by care and padding. Similarly the skin of the forearm may be blistered by the lower end of the front splint. The splints, when properly adjusted, must be secured by tapes tied round at the top and the bottom. Then, a bandage may be applied, commencing from the hand, passing over the forearm, and then over the splints. This prevents swelling of the hand and forearm. Lastly, the *wrist and hand* should be comfortably supported by a sling, but the *elbow* should be allowed to hang down, its weight tending then to prevent the lower part of the bone being dragged upwards by muscular action. The arm thus bandaged is represented below.



In fracture of the lower part of the arm the elbow should be bent, the parts brought into proper position, and an angular splint made of gutta percha, or leather softened in warm water applied on each side. The hand and forearm must be bandaged, and the elbow and forearm supported by a sling from the neck. The part thus bandaged is figured below.



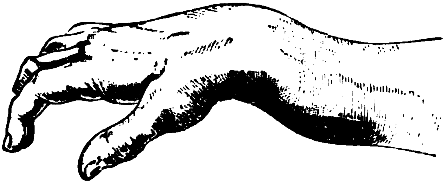
Various other Injuries affecting the Shoulder Joint occur presenting symptoms very similar to fracture of the head of the arm bone. But these are often difficult of detection even to the skilled surgeon. In any case of doubt, it will be well to apply the crossed bandage as for fractured clavicle and to keep the arm to the side, until the advice of a surgeon can be obtained.

Similarly there are other Injuries of the Elbow Joint, presenting many of the symptoms of fracture of the lower part of the arm bone. The precise nature of these is also very difficult of detection; but in all cases keeping the arm bent at right angles, resting on an angular splint, will be the best plan, until the arrival of skilled aid.

FRACTURE OF THE FOREARM.—The two bones of the forearm may be both fractured in any part of their course, or only one may be broken. There will be pain, grating on movement, and the arm will be misshapen; the more so if both bones are broken.

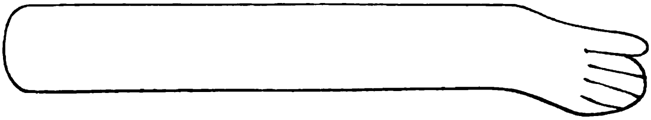
Treatment.—One person should hold the elbow and another pull the hand, keeping the thumb of the injured limb upwards. Then broad well-padded splints must be applied from the fingers to the elbow on each side, and the whole secured by tapes and bandages.

In Children the Forearm is often Bent, rather than quite broken. In such cases it must be forcibly straightened, during which grating will be felt, and then splints are to be applied.



FRACTURE OF THE FOREARM CLOSE TO THE WRIST.—This is an injury from which recovery is tedious and troublesome. The limb is peculiarly bent, as in the accompanying sketch, and there is generally much swelling, while grating is felt on extension of the hand. The lower fragment of the broken bone forms a marked projection at the back of the limb, and leaves in front just above the line of the wrist joint a corresponding depression.

Treatment.—The thumb must be placed upwards, the elbow steadied, and the hand pulled until the natural position is restored. Splints should be applied, the inner one extending from the elbow to the palm of the hand, the outer one curved as in the accompanying diagram, and extending to the ends of the fingers. This position of the hand brings the fractured parts into better contact, when it should be secured by tapes and bandages round the splints. In this particular injury occurring to a young person, or up to thirty years of age, the splints should not be used more than three weeks, nor more than four weeks for an older person; after which the wrist should be gently moved daily, otherwise the joint is liable to become stiff.



Other Injuries about the Wrist Joint occur, more difficult of detection, involving often both the small bones of the joint, and the ends of the bones of the forearm. But in the absence of special surgical skill, they cannot be accurately distinguished, and in all cases where there is doubt it is best to treat the case as for fracture of the middle of the forearm.

FRACTURE OF THE BONES OF THE HAND AND OF THE FINGERS.—These injuries are known by the attendant swelling, pain, and grating.

The best method of treating fractures of the bones of the hand is by laying the extended hand on a wooden or gutta percha splint, cut to the shape of the part. It should be borne in mind that the *inner* or palmar surfaces of the bones of the hands are *concave*, and the splint should therefore be well padded, so that it may adapt itself to their form. Sometimes, in order to maintain the broken parts in better contact, a small splint is desirable on the back of the hand. Then a bandage should be applied so as to keep the hand and fingers immovable. In some instances the broken bones are brought into more natural position when the hand is closed. If this is found to be the case, the injury may be treated by causing the patient to grasp a ball of tow, or other soft substance, about half the size of a cricket ball. The closed hand, with the ball of tow inside, should then be secured in such position by a bandage. The hand should be kept bound for about three weeks.

When a bone of the finger is broken, it may be treated by binding the finger to a narrow splint of wood or gutta percha. But if the injury is very severe, or several fingers are involved, it will be needful to lay the whole hand on a wooden splint cut to the shape of the thumb and fingers. As in fracture of the bones of the hand it should be recollected that the inner surfaces of the bones of the fingers are also concave, and the splints should therefore be well padded. In all cases of fracture of the bones of the hands or fingers, the limb should be supported by a sling, so disposed as to raise the hand a little above the level of the elbow.

FRACTURE OF THE RIBS.—The patient complains of severe pain on drawing a deep breath, and there is also a grating sensation in the side, evident to the patient, and which may be felt on applying the hand flat over the part. If the fracture is near the spine, or the patient corpulent, detection will be more difficult. But if after a blow, squeeze, or other injury to the chest, cutting pain is complained of, the treatment for fractured rib should be pursued.

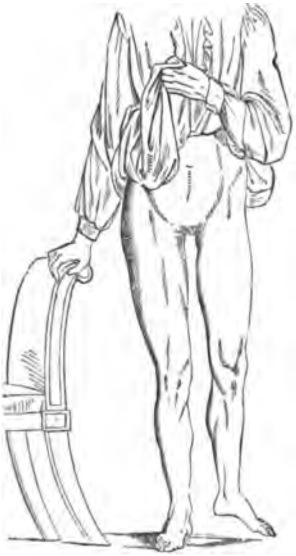
Treatment.—Diminish motion of the chest, by passing a broad roller, eight inches in width, and about twelve feet long, tightly round the body, from the pit of the stomach to the armpit. The bandage will require shoulder straps to maintain it in position. The patient should be kept in bed, and if cough occurs Recipe 31 should be given. The bowels must also be kept open (Recipes 1 and 2). Bleeding may sometimes be required if inflammation sets in, known by increased pain, difficulty of breathing and cough, with febrile symptoms, as quick pulse and hot skin. If all goes on well, the bandage should be worn for three weeks, after which leather plaster may be applied over the seat of injury.

Fractured ribs sometimes cause *pleurisy* (*vide* p. 245).

Emphysema, or Air Entering Beneath the Skin.—This condition sometimes results from the fractured ends of the ribs wounding the lungs. Emphysema forms a soft puffy swelling of the skin, which crackles when pressed. For this complication the bandage should be more tightly applied, a pad of lint having been first placed over the seat of injury. In such cases the necessity for perfect rest must be more especially enjoined; for the occurrence of *pleurisy*, or of *inflammation of the lungs*, is likely; maladies which must be promptly met by the proper treatment of those affections.

FRACTURES OF THE FEMUR, OR THIGH BONE.—These, like fractures of the arm bone, are divisible into injuries of the upper part or head, of the middle or shaft, and of the lower portion.

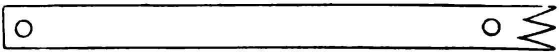
FRACTURES OF THE UPPER PART OF THE THIGH are marked by inability to stand, shortening of the leg, and turning out of the toes, the heel of the injured limb pointing to the instep of the sound member, as shown on the opposite page. If the foot is drawn down to its proper length, and turned about, while a hand is placed on the hip, grating will be felt. This accident frequently happens to old people. The following figure may be usefully compared with the drawing representing the aspect of the limb in dislocation of the same bone, when the different appearance will be at once recognised. (*Vide* p. 385.)



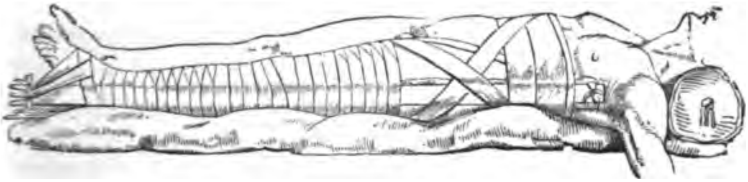
Treatment.—Unless the person is old and feeble, the limb should be bandaged, as detailed below for fracture of the middle of the thigh. If the patient is old and feeble, health would be sacrificed, and probably bed sores formed by long confinement in bed, under the treatment by splints. The patient should be kept in bed for a fortnight, with one pillow under the whole length of the limb, and another rolled up under the knee. When pain and tenderness abate, which will be ordinarily in about a fortnight, the patient may be allowed to sit in a chair, and to use crutches. What is called 'ligamentous union' will take place, and although the leg will be shorter than before, it will be fairly useful, and the shortening may be remedied by a thick-soled shoe. This 'ligamentous union,' it should be explained, consists in the junction of the broken ends of the bone by a tough leather-like substance, but not by bony matter.

FRACTURE OF THE MIDDLE OF THE THIGH.—This accident is readily distinguished by shortening of the limb, by great swelling, and by grating when the ends of the bones are placed in contact by extension, or pulling from the foot.

Treatment.—For all cases of this kind, and for fractures of the upper part of the bone, up to fifty years of age, the long thigh-splint must be used. This is a narrow board of a hand's breadth for an adult, but narrower and slighter for a younger person. It must be long enough to reach from just below the armpit to four inches below the sole of the foot. At the upper end must be a hole, at the lower end two deep notches with a hollow or hole just above for the reception of the ankle bone. First the splint must be thoroughly padded, with layers of blanket or otherwise. Then the limb should be evenly bandaged from the toes up to the knee, and then gently extended to its proper length and shape by pulling the foot. Next, the lower end of the splint is to be fixed to the ankle, by passing a bandage round the foot, and through the notches of the board. Next the splint is secured to the limb by a bandage passing upwards. During all this time an assistant must keep the limb in proper position by pulling the foot. Lastly this extension must be maintained by 'the perinæal band.' This band is formed of a large handkerchief or piece of silk, doubled cornerwise, and rolled round a long thin pad. This is placed between the legs, one end passing over the groin, the other under the buttock, and the ends are tied through the holes at the top of the splint. This mechanically pushes the foot down, and so keeps up the extension. A roll of broad bandage should also be passed round the body and upper



part of the splint, to keep the latter close to the person. The perinæal band is likely to gall, and constant attention must therefore be directed to this part; particular care being taken that it does not press on the privates, or become wet with urine. And as considerable pressure is exerted on the ankle, padding and manipulation are necessary at this part to prevent blisters or sores forming. It is also sometimes necessary to apply short splints, both on the inner side and on the front of the thigh, when the bones have a tendency to project in either direction. The following figure shows a thigh thus bandaged to the long splint.



It very often happens, however, that the bandage round the foot, notwithstanding careful padding, causes irritation, pain or blisters from the pressure, which, when the band between the legs is drawn tight, is very considerable. Or the perinæal band may cause soreness between the legs. Under such circumstances it may be necessary to continue the treatment without these aids, and this may be effected in the following manner. A fixed point, in the shape of a foot-piece, must be attached firmly to the foot of the bed, so that the sole of the foot of the injured limb may rest against it as the patient lies on his back. Then several long broad strips of plaster must be carried from the seat of fracture on the one side, round the foot-piece, to the same point on the opposite side. By this means the pressure and extending force will be so diffused that the person will be scarcely sensible of it. But something is still wanting as the extending force, in place of the perinæal band. And this difficulty is to be overcome by tilting up the lower end of the bed about twelve inches from the floor, and placing blocks of wood below the feet. The patient then lies on an inclined plane, and the body having a tendency to slip towards the head of the bed, while the foot is fixed by the plasters to the immovable foot-board, the desired extension is thus maintained at the seat of the fracture; the body itself being the counter-extending force. As a further precaution, small splints should be applied round the thigh at the point of fracture.

The best method of applying the foot-board is to procure a piece of wood, about half an inch thick, as broad as the sole of the foot, and in length sufficient to reach from the floor when the bed is tilted to the extremities of the toes of the patient as he lies with the heel downwards. The upper portion should be cut into the shape of a foot-piece, and the board should then be firmly screwed to the cross-piece of the bed. A little adjustment by cutting the latter, or the foot-piece, or by inserting a wedge between the two where they meet, will be necessary, in order that the upper part of the board to which the sole of the foot is bound may be perpendicular, and not participate in the tilt of the bed. To render it still more firm, a nail may be driven in the floor, in front of the lower end of the foot-board.

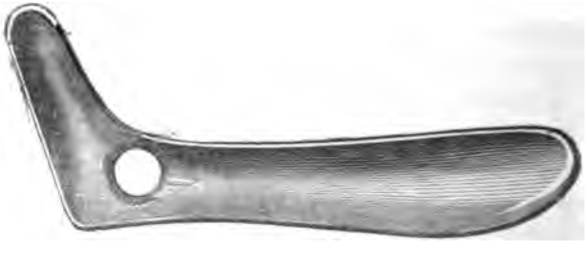
FRACTURE OF THE KNEE-PAN.—This generally results from spasmodic muscular action, as occurs from missing a step in coming downstairs. A sharp pain is experienced, accompanied by an often audible crack or snap. The knee cannot be straightened, and a hollow, or chink, is found between the broken parts, a little above the knee.

Treatment.—The patient must be put to bed, and the limb extended on a light well-padded wooden splint or board reaching from the buttock to the heel, and having a hole at the end to receive the latter part. The heel end of the splint should then be raised about a foot and a half, which has the effect of relaxing the muscles, and so allows the broken parts to come into contact. Or the leg may be laid flat, the body of the patient being propped by a slanting board or bed rest, in the semi-recumbent posture, which has a similar effect on the muscles. Or when one position becomes irksome, it may be exchanged for the other; or one may be maintained during the day, and the other at night, care being taken not to *lessen the angle* at the hip when changing posture, so that the muscles may be constantly relaxed. This may be readily accomplished by raising the body before lowering the foot, or by raising the foot before lowering the body. In some cases the broken parts of the kneecap cannot be brought into satisfactory contact, until both the heel is raised as above, and also the body propped in the semi-recumbent posture. Whatever position is chosen, if there is much swelling and bruising, fomentation should be first used. Afterwards a bandage should be applied round the knee in the form of the figure of 8, which will have the effect of bringing and retaining the broken parts together. A month at least should elapse before the patient attempts to move the knee.

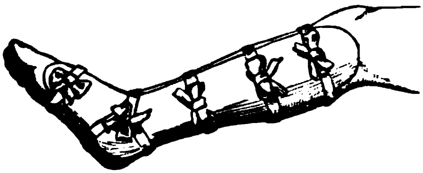
FRACTURE OF THE LEG.—This accident may occur in any part of the leg, and one or both bones may be broken. When both bones are broken, the fracture may be generally easily detected, by running the fingers down the shin, when an irregularity or prominence will be felt at the fractured part. There is also swelling, grating when the limb is moved, deformity, and when both bones are broken inability to stand. Sometimes after this accident the displacement of the bones may be masked, and the presence of fracture rendered doubtful by great swelling of the soft parts. In such a condition the movement necessary for a satisfactory examination is very painful to the patient.

Treatment.—When, as last mentioned, there is great swelling, and the existence of fracture is not to be ascertained without subjecting the patient to great suffering, the limb should be as nearly as possible brought into a natural position, and then gently placed on a well-padded splint, or on a pillow to which it may be lightly tied by broad tapes. The person should lie on the side, so that the leg may be placed with the knee bent on its outer side. Then the limb should be well fomented for several days, or until the swelling subsides, when the broken bones, if not already in place, may be properly adjusted, or 'set,' and splints applied, as advised below. When this fomentation is desirable, or, indeed, when wet applications are ever used, it will be necessary to prevent saturation of the bed by placing an india-rubber sheet, or some oiled silk, or waxed cloth, under the part affected.

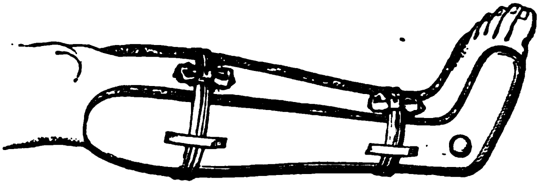
There are *two* positions in which a patient with fracture of the leg may be placed, *viz.* on the side as above described, or on the back. Sometimes the nature of the fracture decides this point, the bones coming into better contact in one position than in the other. The position, however, may be ordinarily determined by the wish of the patient, some persons lying and sleeping more comfortably on the side, others on the back. If it be determined to place the patient on the side, splints should be first prepared wide enough to rather overlap the leg, and provided with foot-pieces. If wooden splints in the shape of the diagram are not available, they may be made of thick pasteboard, or of gutta percha, or they may be cut out of tin. The two first-named mate-



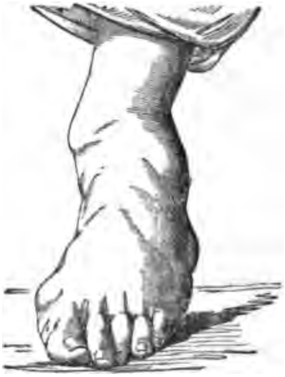
rials should be soaked in nearly boiling water, and moulded to the shape of the leg, by placing them for a short time on the corresponding leg of another person of about the same height. Then the splints should be well padded with cotton wool, sewed in calico bags of the same shape as the splints. When all is ready, the knee of the patient should be fixed by an assistant holding it firmly with both hands, and the broken ends of the bone should be brought into position by steadily but gently pulling the foot. When under this operation the leg assumes the natural shape, the outer side should be gently laid upon one splint, and the other splint should be placed on the inner side; the whole to be secured by loops of tape as shown in the figure. The leg being laid on its *outer* side, the knots must be tied on the *inner* side, and care must be taken that they are not, especially at first, drawn too tight, as the injured part will probably swell for a few days. These loops or knots are more easily loosened and tightened than a bandage, and further allow of the splint on the inner or upper side being lifted off, and the leg examined without disturbing the whole limb.



After eighteen days or three weeks, if all swelling has disappeared, and the fractured part is firm, a starch bandage (Recipe 111) may be applied, and should be worn for a fortnight, after which it will be well to support the parts with plaster (Recipe 112) and a bandage for a week or two longer. The person may walk with crutches after the starch bandage is dry, being careful to rest no weight on the limb, until at least a month after the accident. If the patient is to be placed on the back, the limb must be brought into its natural position by extension of the foot as above described. Then well-padded splints, either with or without foot-pieces (the former preferable), reaching from knee to ankle, must be applied on each side, secured with tapes, and if necessary a bandage. The person should be placed in bed, and the limb with the heel downwards, a small pillow being adjusted *under the hollow* of the ankle, to prevent the heel bearing the whole weight of the leg. Then two bricks wrapped in cloth, or bags of sand, should be placed on each side for the purpose of steadying the limb, and preventing it rolling round. After about three weeks, a starch bandage or leather plaster may be applied.



FRACTURE OF THE LEG IMMEDIATELY ABOVE THE ANKLE.—This accident demands special notice. One or both bones may be broken. In the second case the position



of the foot is as sketched (p. 422.) But often only the small bone (the one on the outside) is broken, when the deformity will not be so evident, and the swelling will be chiefly on the one side.

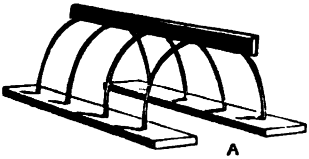
Fractures of this description should be treated with two splints, the patient lying either on the back or on the side, as for fracture of the upper part of the leg.

In treating cases of fracture of the small bone of the leg, or any injury near the ankle-joint, splints ought not to be used for more than a month or five weeks for fear of stiff joint. At the end of that time the joint should be slightly moved daily, in order to secure mobility.

Caution.—In all kinds of fracture of the leg when the case is treated by laying the person on the back, the great toe must be kept *in a line with the inner margin of the kneecap*; otherwise deformity will ensue.

FRACTURES OF THE FOOT.—These injuries are difficult to detect, and generally do not require splints in their treatment—rest, fomentations, and lotions being the proper remedies. Fractures of the bones of the foot generally occur from great violence: the soft parts are frequently also much injured, and such cases will probably necessitate surgical advice.

In treating all fractures of the lower limbs, and also sometimes for the arm, the use of a 'cradle' is necessary to keep the bedclothes from pressing on the injured parts. A 'cradle' may be constructed of some curved iron wires, passed through three slim pieces of wood as in figure A. Or one may be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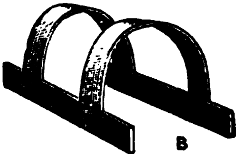
B

made as figure B, by cutting a barrel hoop in two or three pieces and nailing it to two pieces of wood.

TORN OR CUT TENDO ACHILLIS.—The large thick tendon thus called, which connects the heels with the great muscles forming the calf of the leg, and which are the main instruments in keeping the lower limbs erect and straight when we stand, and in throwing the body forward when we walk, is liable to be torn or cut. It may be torn or ruptured in making a false step in walking or running, or in coming downstairs, or when dancing. The tendon tears without warning, and the person drops to the ground with the sensation of a smart blow on the part. On attempting to rise he finds himself unable to rest the least weight on the foot.

Treatment.—This consists in putting the patient to bed, and laying the leg on the outside with the knee much bent, and the toes much pointed, by which position the torn ends of the tendon are brought as nearly as possible together. This posture must be preserved for a fortnight, to give time for the production of the new substance by which the tendon is repaired. To secure this position it will be necessary to bind a piece of thin board, about four fingers wide, extending from below the kneecap to beyond the toes, upon the front of the leg, taking care to have the board well padded so that it may not rub.

The board must be confined by a few turns of bandage above and below the calf. No bandage must be put on where the tendon is torn, a spot easily found before the foot is extended, by the gap into which the finger drops in passing it from the heel up to the leg towards the calf. After a fortnight or a little longer this gap may be felt filled up with a firm substance. The person may then get up, the leg be straightened gradually, and a shoe with a very high heel worn, which may be gradually cut down, till in some months' time the leg may be quite straightened.

When the 'Achilles tendon' is cut, which may happen from the blow of a scythe or sickle, or sword, the case is more serious. The person is in the same condition as a beast which is 'houghed,' and cannot stand. When after this accident the wound has been brought together, by placing the limb in the position above described, the edges of the loose skin drop into the wound, so as to interfere with union. It is therefore generally necessary to nip up both edges of the cut skin, so as to make their *under* surfaces touch, then passing a needle and suture to keep them in such position. The limb must then be 'put up,' as described for simple rupture, and the stitches may be taken out on the third or fourth day. The wound should also be protected by plaster cut into long narrow strips, and applied *lengthwise* on the leg.

CRUTCHES.—When a patient begins to move about after any severe accident or injury involving the lower extremity, he has generally to use crutches. The crutches should be just long enough to enable him to raise the injured leg off the ground while he stands firmly on the other. The cross-bar should be oval-shaped and well padded, otherwise the pressure may lead to strain of the nerves of the arm. The ends of the crutch should be tipped with leather or cloth to prevent them slipping.

If the state of the injured limb is such that the patient ought not to use it at all, it is a good plan to support it with a bandage passed under the foot, the ends being brought up evenly in front and tied behind the neck. In this way a sort of sling is made, which assists the patient in keeping his foot from the ground.

GANGLION.—This is the term applied to a swelling of the membrane enclosing the tendons of the wrist. It generally appears gradually, but it may arise suddenly, after a strain or twist of the part. Similar swellings also sometimes appear from blows or other injury, on the back of the hand, on the tip of the elbow-joint, on the side of the knee, and on the kneecap. These formations should be first fomented and the part rested in order to prevent inflammation. Then, when the part becomes free from tenderness, if on the wrist or back of the hand, the swelling may be burst by pressure with the thumbs, or by a blow with an unbound book. Then a pad and bandage should be worn for some weeks to prevent re-formation. If on other parts of the body, blisters and other surgical treatment will probably be required.

HANGING.—When a person is hung by a cord round the neck, life may be destroyed at once if the body falls any considerable distance, by dislocation of the neck bones. If the force of the fall does not cause this, the pressure of the rope on the blood-vessels of the neck, preventing the flow of blood, may cause rupture of some vessel in the brain, when the person dies as from apoplexy. Such cases, especially the first, are generally immediately fatal. Thirdly, the hanging person may die more slowly from pressure of the cord on the windpipe, which produces suffocation. If this occurs (and it mostly depends on the position of the cord, whether death takes place in this manner or by apoplexy) and the body be soon cut down, the person may possibly be revived by the following measures, or 'Artificial respiration.'

Close the mouth and one nostril, and introduce a pipe of some kind into the other nostril. Then blow gently through the pipe, pressing at the same time on the prominence of the throat, which prevents the air passing down the gullet into the stomach. Or, if at hand, a pair of bellows may be used, the nozzle being inserted into one nostril. After blowing for nearly half a minute, press the abdomen, by which means the air is forced out of the lungs; and then repeat the process about three times in the minute. Cold water should also be dashed on the face, and if the face is very red, bleeding from the jugular vein will be advisable. The method of performing artificial respiration, as recommended (p. 390) for *drowning*, is not so well adapted for hanging; but it may be tried if artificial respiration as above recommended does not succeed.

HEAD, INJURIES OF THE.—*Vide* WOUNDS OF THE SCALP, p. 445; FRACTURE OF THE SKULL, p. 405; CONCUSSION OF THE BRAIN, p. 373; COMPRESSION OF THE BRAIN, p. 376; CONGESTION OF THE BRAIN, p. 63.

KIDNEYS, INJURIES OF THE.—Injuries of the kidneys are generally produced by severe blows on the loins, or they may be caused by falling backwards. Great pain is at once felt, accompanied by faintness, sickness, and inability to walk erect. On passing water there is more or less blood with it, so that it is smoky in colour, or sometimes as dark as porter. There will be frequent calls to make water, and the pain will probably extend by the groin into the thigh. The blood is present because, as a result of the injury, some of the vessels of the kidney have been ruptured.

Treatment.—The patient should lie in bed, and keep perfectly quiet for some days, and both loins and bowels should be alternately fomented with hot water. The bowels should be kept moderately open by Recipes 1 and 2, and small doses of chloral (Recipe 75) may be given to relieve pain. The diet must be very plain and simple, and nothing must be taken likely to irritate the kidneys. Thirst may be allayed by iced milk and water; beef tea, arrowroot, tea, and barley water may also be given. When the urine assumes a lighter colour it shows that less blood is being passed, and that an improvement is taking place; and this may occur at the end of a few days, or be delayed for weeks.

A very small quantity of blood in the urine causes this fluid to appear cloudy when looked through in a glass. But a better test is boiling a small quantity in a glass tube or silver spoon, when, if blood is present, a white precipitate of albumen will be formed. This is a simple test, and to insure thorough recovery, the patient ought to be kept to the house until all traces of albumen are gone. If exertion is made too soon, the bleeding is apt to recur, and the foundation of serious future mischief may be laid.

PRIVATE PARTS, INJURIES OF THE.—In the male the testicles are liable to be injured by blows, or by the patient being thrown forward on the pommel of the saddle. The effect is swelling of the parts, accompanied by great pain and tenderness, with probably faintness immediately after the injury. At first a stimulant, as wine, or brandy and water, will probably be required. Afterwards fomentations and rest will in the great majority of cases effect a cure.

But it sometimes happens that a different kind of swelling forms after a blow on these parts. This variety of tumour is called *Hydrocele*, which signifies accumulation of watery fluid in the membrane surrounding the testicle. If a swelling of the kind does not subside after a week or ten days, this condition may be suspected. The operation of tapping and other attention from a surgeon will then be required.

POISONING.—The principal poisons made use of in India are: *Arsenic*, *Opium*, *Dhatura*, *Aconite*, *Strychnine*, and *Indian Hemp*.

POISONING BY ARSENIC.—White arsenic is the preparation of the metal most frequently used as a poison, and is known in the bazaars under the names of *Sunkiah*, *Sumool Khar*, *Suffed Sumbhul*, *Phenashmabhasma*.

Symptoms.—These commence at variable periods, within half an hour or an hour of swallowing the poison. There is faintness, nausea, violent vomiting of brown matter streaked with blood, and a burning pain at the pit of the stomach, increased by pressure, and gradually extending over the whole of the bowels. This is followed by headache, diarrhœa, a feeling of constriction and heat in the throat, great thirst, and catching, painful respiration. Then the pulse becomes quick and feeble, there is great restlessness, and death usually occurs within twenty-four hours. In some instances there is less pain about the pit of the stomach, but more diarrhœa, accompanied by great straining, and heat and redness about the fundament. Occasionally also convulsions, or cramp of the legs, is a marked symptom.

Treatment.—The first object is to expel the poison from the stomach, for which service the stomach-pump should be employed. If this instrument is not at hand, or cannot be used, the throat should be tickled with a feather, and emetics of sulphate of zinc or of mustard (Recipe 77) should be administered, accompanied by the whites of several eggs beat up in water, or equal parts of oil and water. If these are not available, copious draughts of milk should be given; or large quantities of magnesia, or powdered charcoal in draughts of water. Or if possible scrape a tablespoonful of rust from old iron, and let the patient drink it in water. The best *antidote* for arsenic is *hydrated sesquioxide of iron*; a preparation of iron somewhat similar to rust. But this should be freshly made, should be kept moist, and can therefore be seldom available. It is prepared by dissolving the sesquioxide of iron at a gentle heat in dilute sulphuric acid, then adding *Liquor Ammoniæ* until a precipitate falls down. This is then washed with warm water and kept moist for use. Or a small quantity may be made more quickly by adding the contents of the liquor ammoniæ bottle to the bottle of tincture of iron, and pouring off the fluid at the top. The precipitate at the bottom is hydrated oxide of iron.

After poisoning by arsenic there is generally great depression of the system, and often inflammation of the stomach and bowels. Food consisting of broths or gruel must be given cautiously, and opiates (Recipes 75 or 76) to afford ease and sleep will probably be desirable.

POISONING BY OPIUM.—Solid opium, or a solution of opium in water, are the forms most used as poisons.

The *symptoms* usually come on in about twenty minutes, commencing with giddiness, drowsiness, and stupor, followed by insensibility. The patient appears as if in a sound sleep, from which at first he may be roused by a loud noise, although he quickly sleeps again. As the poisoning progresses the breathing becomes slower, the pulse weak and feeble, and the countenance livid. The eyes are closed, the pupils contracted, often to the size of a pin's point, and there is total insensibility of the eyes to light. Vomiting sometimes occurs with slight reaction, but the state of stupor soon returns. Death is occasionally preceded by convulsions.

Treatment.—If a stomach-pump is at hand, and can be used, it should be employed. Otherwise the throat should be tickled with a feather, and emetics of mustard should be given (Recipe 77). After the stomach has been cleared out by emetics and by tickling the throat, give an ounce of the strongest black coffee which can be made every twenty minutes, until the pupils of the eyes begin to dilate. The patient should be kept from sleeping by dashing cold water on the face, by beating the palms of the hands, and by dragging or walking him about the room. If at hand shocks may be given with the galvanic or electric machine. Mustard poultices may also be applied over the heart, at the back of the neck, and to the calves. After the emetic no water should be given, as water tends to dissolve the opium, should any remain in the stomach. After the more urgent symptoms have passed away, some more strong coffee should be given, and the patient may be allowed to sleep for an hour. At a still later period if the patient is low, feeble, and restless, a little wine or brandy may be required; or if constipation supervenes, a dose of castor oil may be necessary.

OPIUM POISONING IN CHILDREN does not differ in its symptoms, when the dose is sufficiently large, from opium poisoning in the adult. But to keep children quiet the drug is frequently given by Native servants, and still more often by Native parents to their own children, in injurious but not poisonous doses. This may be suspected when a child without appearing in pain is dull, drowsy, with the pupils of the eyes contracted, and almost insensible to the light of a candle. When servants are suspected of giving opium, committing the child to some other care is the only course open.

If a child swallows a dose of opium, laudanum, or opium liniment, vomiting should be induced by tickling the throat with a feather, and as soon as possible a mustard emetic should be given. This should be composed of two teaspoonfuls of flour of mustard in a teacupful of warm water. Vomiting should be encouraged by inducing or forcing the child to swallow warm water, and the child should not be permitted to go to sleep.

POISONING BY DHATURA.—The dhatura plant grows in many parts of India, and is known in the bazaars under the terms of *Krishna Dhatura*, or *Kala Dhatura*. The seeds of the plant are generally used as the poison. They are small and kidney-shaped, about a quarter of an inch long, but of less width; the colour is greenish brown, the surface rough, and the outlines angular. This latter characteristic distinguishes them from capsicum seeds, which they much resemble, but which are rounded, instead of angular in outline like Dhatura seeds. The latter are used as poison after pounding, by mixture with rice, or coarse flour, or sweetmeats, or sometimes in infusion, or by smoking in a 'hookah.'

Symptoms.—The symptoms are first a giddy sensation in the head, ringing in the ears, dryness of throat, followed by loss of voluntary muscular action. The person tries to grasp at real or imaginary objects, appears timid and shrinking, commences to talk with great volubility, but breaks down in the middle of a sentence. He still makes abortive efforts to talk, straining the muscles of his face in a ridiculous manner, and often frothing at the mouth. Often he appears as if employed drawing out threads from the ends of his fingers. Sometimes he laughs at his extraordinary antics, sometimes he moans, sometimes he becomes furiously mad and requires to be controlled by force. An order given in a loud voice is, however, generally sufficient to reduce him to obedience. The pupils of the eye gradually become *dilated*, while the pulse becomes slow and feeble. Then total loss of consciousness occurs, the person becoming insensible to pricks or pinches, while the pupil of the eye becomes still more dilated until it assumes the appearance of a mere ring. There is also foaming at the mouth, and previous to death comatose breathing, as in apoplexy. When the patient recovers after the stage of insensibility, this condition is generally succeeded by a return of the delirium.

If the quantity of the poison taken has been small, a state of semi-unconsciousness may continue four or five days, when the symptoms gradually pass off, a peculiar confusion of ideas and loss of memory being among the last to depart.

Treatment.—First evacuate the contents of the stomach by an emetic of mustard and water, Recipe 77. If the stomach, as sometimes happens, has become so paralysed by the poison that the emetic produces no effect, efforts should be made to excite vomiting by tickling the throat with a feather. Cold water should be poured on the head and spine, and, if possible, ice should be applied to the latter part. After the action of the emetic has ceased, give half an ounce of castor oil, or place two drops of croton oil on the back of the tongue. Also administer chlorodyne, giving a first dose of thirty minims, and then ten minims every half-hour for four doses, or *until the pupils begin to contract.*

[If possible tincture of opium (laudanum) should be substituted for the chlorodyne mentioned in the last paragraph, the first dose being twenty minims.

When the poisonous effects have gone so far as to render swallowing difficult or impossible, a solution of morphia may be injected beneath the skin, with the hypodermic injecting syringe, but the use of this instrument requires special instructions, or the aid of a medical man.]

POISONING BY ACONITE.—Aconite, or 'monkshood,' is a plant growing in many parts of India, the root of which is generally used as a poison. It is 'tap shaped,' blunt at one end and pointed at the other, two or three inches long, rough and dark brown on the outside, and when broken presenting a glistening blackish appearance. It is known in the bazaars under the names of *Metha Teelia*, *Bikh*, *Dakra*, or *Bish*. It is often used for the destruction of wild animals, and it is stated wells are sometimes poisoned by the bruised root being thrown into the water. Aconite in powder is also often mixed with prepared 'betel and paun' used by the Natives for chewing.

Symptoms.—When aconite is swallowed, either in substance or as an infusion or powder, it produces tingling of the lips and tongue, a burning sensation in the throat and stomach, accompanied by numbness of those parts, and often also of the whole body. There is also frequently intolerable itching of the surface of the body generally, while the pupils of the eyes become dilated; but the dilatation is not so perfect as that caused by dhatura, there being a tendency to contraction when the eyes are exposed to a strong light. There is also spitting, hawking, retching, and vomiting, with frothing of the mouth. This latter symptom is more marked in aconite than in dhatura poisoning, as the numbness of the lips caused by aconite renders the parts insensible to the accumulated froth, or saliva, and there is, therefore, less spitting to get rid of it. After a variable period paralysis of the legs occurs, with insensibility to pain on pinching or pricking the part, but the power of moving the arms, and the sensibility of the upper part of the body, remain unimpaired. When aconite has been taken in poisonous doses, both the pulse and respiration are rendered slower than natural, the person gradually becomes insensible, and convulsions may precede death.

Treatment.—Stimulating emetics of mustard (Recipe 77) should be promptly given. After vomiting has occurred, very strong tea or coffee should be taken at intervals. If the breathing is difficult, a mustard poultice to the chest. If the pulse is low and the patient feeble, stimulants, as wine or brandy.

POISONING BY STRYCHNINE.—The *Strychnos nux vomica* grows in many parts of India, and is known as *koochla*. The seeds, also commonly called *koochla*, are generally used for criminal purposes. They are nearly circular in shape, and flat, about an inch in diameter, umbilicated, and slightly convex on one side; externally of an ash-grey colour, covered with short satiny hairs, internally translucent, tough, and horny. The taste is intensely bitter, but there is no odour. The bark is also sometimes used. It is found in twisted bits like dried horn, and is covered with white prominent spots. When pulverised it yields a light yellow powder. Either infusions of the seeds or bark, or the powders, may be used for criminal purposes, and the effects are due to the contained strychnine.

Symptoms.—In from a few minutes to an hour after taking the poison, the person complains of a feeling of suffocation, difficulty of breathing, and want of air. These feelings are soon followed by twitchings of the head and limbs, which shortly become convulsed, and the jaws may be firmly closed, constituting 'locked jaw.' The limbs are forcibly extended, the legs widely separated, and the feet often turned inwards or outwards. The head is thrown back, and the body is bent, so as to rest on the head and the heels. During the convulsions the face is livid, the eyes prominent, the pupils dilated, and the features drawn into a terrible grin, characteristic of such convulsions, and known as the *risus sardonicus*. After the spasms have lasted two or three minutes, there is a remission of short duration, and the patient lies exhausted and bathed in sweat. The fits return without any apparent cause, but sometimes appear to be brought on by efforts to drink, or by movement. The pulse is very rapid, and there is much pain at the pit of the stomach, and excruciating cramps in the limbs. In the intervals between the fits the person can converse, and often is able to swallow ; during the fits he can do neither, and feels as if being suffocated. This occurs from the spasms preventing the chest expanding, and therefore the passage of air into the lungs cannot take place. When the case terminates fatally, the fits become more frequent, and the person dies, generally in two or three hours, partly from exhaustion and partly from suffocation.

Treatment.—An emetic of mustard (Recipe 77) should be given immediately, and afterwards chloroform should be administered. Half a drachm of chloroform should be placed on a handkerchief, which should be held a couple of inches from the patient's mouth and nose. This may be repeated every ten minutes, or as often as the spasms return. Large quantities of powdered charcoal should also be given in water. If the patient cannot swallow, powdered charcoal in water should, if possible, be injected into the stomach by means of a stomach-pump.

POISONING BY INDIAN HEMP.—This is a plant growing in India, and known botanically as *Cannabis Indica*, or *Cannabis sativa*. The parts in common use for criminal purposes or for producing intoxication are, 1. *Churus*, a resinous exudation found on the flowers, leaves, and stalks of the plant, and looking like a piece of blackish wax, with faint odour. 2. *Ganjah*, the dried flowers and smaller leaves and stalks from which the resin has not been removed. The pieces have a dirty brown appearance, and the flowers are shrivelled at the end of the stalks. 3. *Bhang*, the dried larger leaves, much broken, and which have a greener appearance. 4. *Majoon*, a compound of *churus*, butter, sugar, flour, and milk, generally made in the form of small round cakes of a light yellow colour.

Of the above *churus* and *ganjah* are used for smoking, and an infusion is made from *bhang* for drinking. *Majoon* is eaten as a sweetmeat.

Symptoms.—These preparations of Indian hemp are generally used to stupefy, and thus favour the commission of crime, rather than with the view of causing death. A person under the influence of any preparation of Indian hemp, is very much as if under the operation of alcohol. There is first great excitement, the person often running about shouting; then come fits of laughing, alternating with intervals of stupidity. The latter become more frequent until there is total insensibility. The muscles during the stage of excitement are rigid, afterwards becoming flaccid, and the pupils gradually become contracted. The insensible condition may last an hour, or eight or ten hours, according to the amount taken.

Treatment.—If the person can swallow, a mustard emetic (Recipe 77) may be given. Cold water should also be applied to the head. But it is generally as well to let the person sleep the effects away.

The prominent symptoms caused by these Indian poisons are placed in contrast below.

Poisons.	*Prominent Symptoms.*
ARSENIC	Faintness, nausea, violent vomiting, purging, burning in the throat and stomach, thirst, cramp of legs, feeble pulse, cold skin.
OPIUM	Giddiness, drowsiness, stupor, succeeded by total insensibility and stertorous breathing, skin cold, face pallid, eyes closed, pupils contracted.
DHATURA	Headache, faintness, dimness of sight, giddiness, thirst, excitement, voluble talking, laughter, fatuity, dilated pupils, insensibility, stertorous breathing.
ACONITE	Numbness and tingling of the tongue and lips, burning of the throat, spitting, hawking, frothing at the mouth, vomiting, purging, pupils dilated, but contracting on exposure to strong light, delirium, stupor, paralysis, insensibility, convulsions.

Poisons.	*Prominent Symptoms.*
STRYCHNINE	Feeling of suffocation, difficulty of breathing, twitching of the limbs, locked jaw, convulsions, the body being bent back, features drawn into a characteristic grin.
INDIAN HEMP	Appears like a drunken person, fits of laughing, alternating with intervals of stupidity, which gradually increase to insensibility.

POISONS AND ANTIDOTES.—The subjoined table affords at a glance guidance in cases of poisoning.

Non-metallic Poisons.	*Antidotes.*
Mineral acids, as vitriol or sulphuric acid, nitric acid, spirits of salts, hydrochloric acid	Magnesia, chalk, or whiting mixed with milk or water; washing soda in the same.
Vegetable acids, as oxalic acid, tartaric acid, acetic acid, salts of sorrel, cream of tartar	Chalk, or whiting, or soda in milk or water.
Alkalis, as potash, soda, ammonia, sal volatile, smelling salts . . .	Equal parts of vinegar and water, lemon juice, oil.
Salts. Baryta and its salts	Epsom salts.
Alum	Washing soda, smelling salts in water.
Arsenic and its salts	A mixture of oil and lime-water, emetics, sulphate of zinc, soap-suds, mustard, milk, flour and water.
Corrosive sublimate and salts of mercury	White of egg in water, wheat flour thick in water.
Salts of lead, sugar of lead, white lead	Epsom salts and vinegar diluted.
Salts of copper, blue vitriol, verdigris	White of egg in water, milk, wheat flour in water.
Antimony, as tartar emetic . . .	Tincture of kino or catechu, magnesia, tannin or gallic acid.
Butter of antimony	Magnesia, washing soda, chalk.
Salts of zinc, as sulphate or acetate	Milk, soda, magnesia.
Iron, as sulphate of, or green vitriol	Soda or smelling salts.
Silver, as nitrate of, or caustic . .	Common table salt in water freely.

Narcotic and Deliriant Poisons.	*Antidotes.*
Opium, morphia, aconite, hemlock, dhatura	Emetics, mustard, sulphate of zinc, strong coffee, motion and means to prevent sleep.

Other Poisons.	*Antidotes.*
Prussic acid	Ammonia, sal volatile, smelling salts, hartshorn.
Strychnine	Emetics.

RUPTURE.—Technically spoken of as *hernia*; vulgarly as 'broken belly.'

There are several varieties of rupture, but the most common appear in the male as a tumour in the groin; in the female as a tumour a little lower than the groin. This tumour or swelling is caused by the muscles over the bowels giving way, and letting some portion of the intestines escape outwards beneath the skin through their separated fibres. The affection may come on gradually from natural weakness of the parts, but it more often happens suddenly during extraordinary exertion, as running, wrestling, or jumping. A sudden sensation of something snapping or giving way is felt, and the swelling appears. In the male the rupture eventually makes its way into the scrotum, or purse. In the female it remains as a smaller tumour in the groin.

When a rupture has occurred the bowel may return into the cavity of the abdomen. Or it may remain fixed by the ruptured muscular fibres through which it has passed, in which case it is said to be *strangulated.*

In the first result no extraordinary symptoms appear, but the tumour is always liable to return, and the person will require to wear a truss, and to avoid any excessive exertion.

In the second case, when the tumour does not return, symptoms of what is termed *strangulation* quickly show themselves. The patient first complains of flatulence, colicky pains, a sense of tightness across the belly, desire to go to stool, and inability to evacuate the contents of the bowels. Some fæcal matter may, however, be passed if any happens to be present *below* that part of the intestinal tube which has become strangulated. To these symptoms succeed vomiting of the contents of the stomach, then of bilious matter, and lastly of matters which have acquired the odour, and often the appearances of fæces. On examination of the part, the swelling will be found tense and incompressible. If this state of matters continue, the inflammatory stage sets in. The tumour, and eventually the whole surface of the belly, becomes swelled, tender, and painful. The countenance denotes anxiety, the vomiting is constant, the patient restless and desponding, and the pulse small, quick, and wiry to the touch. After a variable time the parts begin to mortify, the tumour becomes dusky red, the pain ceases, and the patient having probably expressed himself relieved, soon after dies.

Treatment.—The great point is to return the protruding intestine into the cavity of the abdomen. The bladder having been emptied, the patient should lie down with his shoulders raised and with both thighs bent towards his belly, and placed close together. This relaxes all the muscles. Then the operator grasps the swelling with the fingers if small, with the palm of the hands if large, and gently compresses it. This will probably dispel wind, and other contents of the swelling, into the cavity of the belly. Then the swelling may be raised by its neck, gently pulled forward, and again 'kneaded' or compressed. This should be continued for a quarter of an hour if the swelling is not tender, but for a shorter period if the reverse condition is present. Too much force must not be used, otherwise the tumour may be pushed between the muscles instead of back into its proper place. If this does not succeed, the patient should be either put into a hot bath, or chloroformed, and similar endeavours made while the person is in the water, or when he is insensible from the chloroform. If there is no chloroform, or no one to administer it, and symptoms of strangulation are not violent, a large dose of chlorodyne or chloral, or, if available, forty drops of laudanum in an ounce of water, may be given and the patient let alone for a time, when the rupture may return, or it may be returned by repetition of manual endeavours as above.

But if symptoms of strangulation are urgent, and the swelling cannot be returned, a surgical operation of an important and dangerous character affords the only chance of recovery.

Caution.—In all cases of rupture, purgatives either given by the mouth or as enemata are mischievous, and will do harm. Therefore, the feeling of a desire to stool, or entreaty on the part of the patient for something to open the bowels, should not be complied with.

RUPTURE AT THE NAVEL.—This is a form of rupture most frequently happening to children. It may result from inattention to the navel after birth, or it may occur suddenly during severe paroxysms of crying, or straining at stool. It is known by a bulging of the navel, which sometimes is pushed forward, and assumes the size of an egg.

Treatment.—A large piece of cork covered with lint should be fitted over the swelling, and retained in its position with strips of plaster and a bandage. But as soon as possible the age and measurement of the child should be sent to a surgical instrument maker, and an elastic bandage constructed for the purpose should be procured. This the child should wear constantly, and fits of crying should as much as possible be prevented, as the rupture always protrudes more on such occasions. As the child grows the tendency of the tumour to increase gradually lessens, and by constantly using pressure as above, the tumour will gradually disappear.

It sometimes, however, occurs that *direct* pressure applied as above does not succeed, owing to weakness of the muscles immediately surrounding the protrusion. If this is the case, an oval-shaped pad should be constructed of gutta percha or wood, having a central circular opening, the edges of which should be raised to the height of three quarters of an inch, and gradually sloped to the circumference. The pad may be one inch and a half broad by two inches long, the central circular hole should be the size of a sixpence, and the *under* surface of the pad should be flat. The pad should be secured over the navel by strips of sticking plaster, the effect being pressure on the *margins* of the protrusion, instead of on the rupture itself, and which pressure, by the action of the raised edges of the circular opening above referred to, is directed downwards and inwards.

SPRAINS or STRAINS.—These injuries may be defined as dislocations begun, but not completed. The terms signify a violent stretching of the tendons, ligaments, or muscles of the part. Sprains generally occur to the joints, as the ankles, wrists, or knees. Some of the fibres of the tendons about the injured part are often ruptured or torn. The symptoms are severe pain, often attended with faintness, followed by great swelling and discoloration, with subsequent weakness and stiffness. If the part is not kept at rest, or if the diet be intemperate, or the blood impure, or if the knee or some other large joint is injured, there may be great pain, inflammation, and fever, which, if neglected, may lead to serious results. A sprain is to be best distinguished from a dislocation by pressing the joint steadily and firmly. If it be a dislocation the end of the bone is felt firm and hard; while the swelling caused by a sprain is soft and yielding. The absence of grating distinguishes sprain from fracture.

Treatment.—The most essential measure is *perfect rest*, and to insure this, if the case be at all serious the injured part should be confined by pasteboard or gutta percha splints. If the wrist is injured, it must be constantly suspended in a sling. If the ankle, the patient must lie or sit, with his leg immovable on a couch or stool. Warm fomentations generally give more relief than cold lotions, but in this the patient's feelings may be consulted (*vide* p. 493). If inflammation and fever are high, and a large joint is affected, leeches should be applied, and cooling medicines, as citrate of magnesia, may be administered. Subsequently, friction with soap liniment, moderate exercise, and the support of bandages will be required. After a sprain the part often remains weak, and liable to injury for some time.

TEETH, INJURIES OF THE.—When a tooth is broken, any sharp or jagged point should be smoothed with a fine, sharp file, which will prevent injury to the mouth or tongue, and, moreover, render the tooth less liable to decay commencing from the seat of injury. If a tooth is loosened so much as to be almost thrust from its socket, or to shake about, it should not be removed, as with care it will probably again unite to the gum. It should be carefully replaced in its natural position, and the person should be instructed to avoid pushing or moving it with the tongue. If it will not remain *in situ*, a fine piece of wire or silk, or a horsehair, should be passed round it and the adjacent tooth, so as to prevent motion. It has often happened that a tooth knocked out of the mouth, or drawn by mistake by a dentist, having been immediately returned to the socket has again taken root. These facts have led to the replanting of teeth as a regular operation of dental surgery, so that a loose tooth should never be despaired of, or extracted, simply because it has become loose from some injury.

URINE, RETENTION OF.—Retention of urine signifies an inability to pass water, *not* a stoppage of the formation or secretion of urine. In this condition urine still flows from the kidneys where it is secreted, into the bladder, but cannot escape from the latter organ. Retention of urine often occurs from disease of the parts, as stricture, and often from injury, such as falling cross-legged on a gate or wooden bar, or after dislocation or fracture of the thigh bone. The patient has great desire to make water, and strains to do so, but no urine appears. If not relieved, the bladder soon becomes distended, and can be felt as a tense round swelling in the lower part of the belly. The patient grows feverish, the pulse quick, and the bladder may either burst, or, becoming paralysed, may remain full, while urine dribbles away involuntarily. When retention occurs from injury unconnected with laceration of the urinary passage, or with stricture, fomenting between the legs and over the bowels with a dose of chloral (Recipe 75) will generally afford relief. Otherwise, the catheter must be used, as described at p. 349.

WOUNDS.—A wound differs from a bruise in involving an opening in the skin. Wounds present many different characteristics, as they may be clean cut with a sharp instrument as a sword, or made jagged and ragged by a blunt instrument as a saw, or bruised as by a rough club or stick, or punctured as by a sharp pointed instrument as a bayonet.

In the first variety, of clean cut or incised wounds, bleeding must be first checked, and then all dirt and *débris* removed. To arrest bleeding, a raised position, the application of cold water, and pressure with a sponge will often suffice. But if an artery is wounded, and the bleeding prove obstinate, measures must be adopted as pointed out in the paragraphs on BLEEDING OR HÆMORRHAGE (p. 358). The removal of dirt and foreign bodies from the wound may be effected by a stream of cold water, by the sponge, and by the forceps. Having thus stopped bleeding and removed dirt, all clots of blood should be taken away, and the wounded part placed in such a position as will best favour approximation of the cut edges, which must be brought together and maintained in position by long strips of adhesive plaster; one end of the plaster being first applied to that side of the wound where the skin is most loose. Then a light pad of lint should be placed over the wound, and a bandage applied to retain all in position. For a very slight clean cut wound collodion may suffice instead of sticking plaster. To apply this agent the edges of the cut should be held together while the collodion is applied with a brush. The collodion quickly hardens and contracts, and the wound is allowed to heal beneath. But for larger wounds, and especially for wounds of loose parts as the eyelids or ear, sutures and stitches will be often required. But stitches should never be used to *drag* the edges of a wound together, and they should be removed on the third or fourth day, otherwise inflammation may result from the irritation of their presence. In stitching a wound the needle should be passed deep enough to obtain a firm hold, but should not penetrate any tendon or muscle. Clean cut wounds should not be opened the day after they are dressed, but may be cautiously re-dressed on the third day. Care must then be taken that the support of one strip of plaster or of the fingers is always afforded, otherwise the union taking place will be broken through. In removing or changing the plasters the *ends* should be first raised, and both lifted up from the outside to the centre, so that no dragging may take place tending to separate the edges of the injured part. Care must also be taken to thoroughly clear away all discharge, lest it become offensive and maggots appear. After the third day all wounds in India should, as a matter of cleanliness, be dressed daily.

It may be well here to say that although thorough division of a part may have taken place (*e.g.*, a finger, or a toe, or a portion of the nose or ear may have been completely severed), still, an attempt to unite the divided parts should be made, and success will frequently follow the attempt.

The neglect of cleanliness of wounded parts is frequently followed in tropical climates by the appearance of maggots, which sometimes form in great numbers. The presence of these larvæ, which prey upon the surrounding textures (*vide* WORMS IN THE NOSE, p. 345), altogether interferes with the healing process, and their expulsion is matter of urgent necessity. This is readily effected when the wound is in position and form, permitting easy access to all parts of the injury, Then the maggots may be picked out with forceps, or destroyed by injections, of which the best is black wash (Recipe 88), or, this not available, lime water (Recipe 41). If, however, maggots have penetrated into a sinus stretching away from a wound, the use of the knife to open up the part may be necessary; or the maggots will not only prevent healing, but also cause the formation of abscess, and a trivial case may thus be converted into a very serious one.

IN CASES OF JAGGED, LACERATED, OR CONTUSED WOUNDS, while restraining bleeding and removing foreign bodies may be easily accomplished, it will often be impossible to approximate the edges of the wound, either by plaster or stitches. But this should be effected as far as possible. In many wounds of this description the laceration is so great that it is necessary to abandon all attempts to bring the edges correctly together. In these cases poultices, and afterwards cold-water dressing, will be the best treatment; the wound being allowed to heal by what is called granulation and cicatrisation.

IN WOUNDS OF THE SCALP, which may be either cleanly cut, or jagged and lacerated, in addition to restraining bleeding, clearing away foreign matter, and removing clots of blood, the hair must be cut away, and the scalp shaved for several inches round the wound in order to afford space for the application of plaster. In bad scalp wounds it is sometimes necessary to shave the whole head. Wounds of the scalp, however slight, should never be neglected, as they are particularly liable to be followed by erysipelas; and for a similar reason the use of stitches in scalp injuries should, whenever practicable, be dispensed with.

Punctured Wounds, with which may be classed gunshot wounds, and wounds of joints, are the most dangerous—because deep-seated blood-vessels or nerves are so often implicated; because the parts punctured must be also stretched and torn; in consequence of foreign bodies, as dirt, bullets, pieces of clothing being often carried very deeply into the body; because there is often no free exit for matter formed in the course of the wound; and because such injuries are more liable to be followed by lock-jaw or tetanus. Both punctured and gunshot wounds are often attended with great shock to the system, so that in most cases some stimulant, as brandy and water, or wine, will be required immediately after the accident. If a foreign body, as a bullet, a piece of cloth, a piece of glass, a part of a knife, an arrow head, can be felt, it should be gently removed with the fingers, or a pair of forceps. If faintness and depression or loss of blood indicate wound of some important internal organ, or of a large artery, the case assumes a most serious aspect, and demands the highest professional skill. But in all instances it will be best to apply cold-water dressing to the wound, to keep the patient lying on the wounded side, so as to favour escape of blood or discharges, to enforce perfect rest, and to give low diet. If the wound begins to throb and the sufferer becomes feverish, poultices should be applied, and a purgative, Recipe 2, and cooling draughts of citrate of magnesia (*vide* p. 13) should be given.

WOUNDS OF INTERNAL ORGANS.—The following symptoms may, perhaps, serve as some guide in distinguishing wounds of internal organs.

WOUNDS OF THE BRAIN.—These injuries will be accompanied by the state known as *concussion* (*vide* p. 373), in which the patient lies cold, motionless with pale face, irregular pulse, the surface of the skin being covered with a cold perspiration. After a time, varying from minutes to hours, vomiting generally occurs, and the injured person may recover consciousness; or he sinks into stupor, the breathing becomes heavy and laboured, and death terminates the scene.

WOUNDS OF THE LUNGS.—There is great difficulty of breathing and sense of suffocation, the countenance is pallid and anxious, and there is expectoration of florid blood mixed with clots, which is coughed up in mouthfuls. These symptoms may subside, or the patient may die from exhaustion from loss of blood; or at a later period, from inflammation of the lungs.

WOUNDS OF THE BOWELS, LIVER, SPLEEN, AND ABDOMINAL ORGANS.—Wounds of the bowels, liver, spleen, or other abdominal parts are marked by similar symptoms of faintness or depression, with feeble and intermitting pulse. If the bowels are wounded there will probably be vomiting of bile or blood, and perhaps the passage of bloody stools. If the kidneys are injured there may be bloody urine. Death may occur immediately from 'shock,' or loss of blood, or afterwards from accession of inflammation and its results. Death from rupture of the spleen often occurs to Natives (in many of whom this organ is enlarged or diseased) from a slight blow or from a fall, which suffices to rupture the organ without even any external mark of injury. In such cases the only means to be adopted are keeping the person as quiet as possible, giving a stimulant in very small quantity at a time, and desisting altogether if the pulse becomes stronger. Under such measures, if the rupture or internal wound is small, the flow of blood may cease, the wound unite, and the patient recover.

If from a wound of the abdominal wall the bowel should protrude, it must be carefully washed with warm water, cleansed from all impurity, and at once returned by pressure with the fingers. If the bowel itself is torn, the wound must be closed; if very small, by pinching up and tying; if large, by stitching it up. The edges of the wound should be *turned in*, so that the outer surfaces come into contact. Fine silk should be used, and small stitches taken. The ends of the thread should be cut close off, and the bowel then returned, as if it were uninjured. If the patient recover, the ligatures will drop into the cavity of the gut, and no ill consequences result. The external wound should be closed up by stitches and plaster, supported by a pad and bandage. Ice should be applied to the abdomen afterwards.

WOUNDS OF THE THROAT.—These wounds are generally made with the intention of suicide, and are extremely dangerous, both from the importance of the parts injured, and from the accompanying desponding condition of the patient. They may be clean cut, or jagged and lacerated; they may be superficial or deep; they may implicate arteries, veins, windpipe, or the gullet.

Treatment.—In the first place, any arteries that are wounded must be tied, and bleeding from veins (known by the blacker colour of the blood) must be restrained by pressure with the fingers. The patient should be put to bed in rather a warm room, and as soon as all bleeding has ceased, *but not before*, the shoulders should be raised on pillows, the head bent forward, and thus confined by a bandage passing from the forehead, or round the head to the shoulders. *No* plasters or sutures should be used, except under surgical advice. If the wound penetrates the windpipe, it should be covered with a loose woollen comforter, or a layer of cotton wool. If the gullet is wounded, the patient will probably require to be fed with a tube. The great thirst complained of in these cases may be relieved by sucking wet rag or ice. As these injuries are generally inflicted with a suicidal intent, it will be needful to have the patient narrowly watched, or he may repeat the attempt.

WOUNDS OF THE EYES.—Wounds of the eyes may result in various injuries to these important organs, which, however, can only be correctly understood by those conversant with the anatomy of the parts. But in all cases of cuts or wounds of the eyes, any protruded part should be gently and carefully pushed back with a probe; and until surgical advice is forthcoming the patient should be placed in a darkened apartment, the lid should be kept closed by a covering of cotton wool and a light bandage, and cold water should be used as a lotion. Purgatives should also be administered, and abstinence from stimulants should be enjoined.

[It will also be advisable to obtain a solution of *atropine*, of the strength of two grains to an ounce of water, a drop or two of which should be dropped into the eye twice daily, in order to dilate the pupil, and prevent adhesions from inflammation.]

WOUNDS OF THE PALM OF THE HAND.—Wounds in this position sometimes give much trouble from the artery passing through the palm being injured. When after such a wound bleeding occurs, a pad should be placed over the part, and another on the back of the hand. Then two pieces of wood or two paper knives should be laid transversely across the hand, and their ends tied firmly together. The forearm should then be bandaged, and the whole allowed to remain for twenty-four hours, after which the part should be dressed as an ordinary wound. If pieces of wood, such as paper knives, are not at hand, the bleeding may be stopped by bending the elbow and binding the hand to the shoulder. After bleeding has stopped, the wound should be dressed daily with plasters.

WOUNDS OF THE TONGUE.—Injuries of the tongue are liable to occur, in connection with other accidents, when the organ, during the shock, gets accidentally thrust between the teeth. As a general rule, it is best to leave wounds of the tongue entirely to nature, as it is difficult to introduce ligatures, and plasters are inadmissible. But sometimes wounds of the tongue bleed very freely, and may require ligature of an artery; or perhaps the actual cautery (a red-hot iron wire) may be necessary to arrest the bleeding.

WOUNDS CAUSED BY THE BITES OF ANIMALS.

Tiger Bites.—These injuries may be superficial, or, as is more generally the case, they may involve deep-seated parts. The hand, for instance, may be seized and bitten to pieces; the chest may be seized, when the teeth or claws will probably penetrate the lungs. Or the thigh may be seized, and the large artery wounded. When such accidents occur, measures to arrest bleeding should be first taken (*vide* paragraphs on Bleeding or Hæmorrhage), after which the wounds should be thoroughly cleansed, and water dressing applied, and the patient conveyed to the nearest surgeon. If the injured person is fortunate enough to escape with only superficial fang or claw wounds, poultices should be applied for the first few days, and afterwards simple dressing or water dressing.

There is a very general impression that wounds from the teeth or claws of animals are poisoned by some deleterious agency thus introduced. This idea is not, however, correct, and has arisen from the slow manner in which such wounds heal, often being attended with considerable discharge of matter, or even sloughing of the injured parts. The fact is, that wounds from the teeth or claws of animals must necessarily be attended by puncture, laceration, and contusion of the person: conditions quite sufficient to account for the slow manner in which they heal, as compared with wounds made by sharp clean-cutting instruments. Provided the animal inflicting the injury is a healthy animal, the wounds are not poisoned by either teeth or claws.

Bear Bites.—The remarks on tiger bite are also applicable to injuries inflicted by the bear.

Horse Bites.—These injuries being generally attended with considerable bruising, require well washing with warm water, poulticing, and rest of the part injured; afterwards water or simple dressing.

CAMEL BITES.—Injuries from the bites of camels are of frequent occurrence in those parts of India where this animal is much in use. Like horse bites, they are attended with much bruising of the parts, and a sharp tooth may sometimes penetrate and wound an artery, as, for instance, the artery of the wrist. If such complication occurs, the flow of blood must first be stopped, as directed in the paragraphs on BLEEDING (p. 358). Afterwards the parts should be treated as advised for horse bites.

DOG AND CAT BITES.—A bite from either dog or cat which is not mad is often difficult to heal, from the wounds being punctured, contused, or lacerated. Such injuries should be first thoroughly washed with warm water, after which a bread poultice may be applied for a day or two. If there is pain in the wound, the parts should be fomented with hot infusion of poppy heads previous to each change of poultice. After several poultices have been applied, or when the wounds look clean and free from discharge, simple dressing or water dressing should be used. For the treatment of the bite of a mad dog, refer to HYDROPHOBIA, p. 207.

It may be here remarked, that there is no particular danger from the bite of a dog, unless arteries or other important parts are injured. The idea that a person bitten by a dog will suffer from hydrophobia if the dog should *afterwards* go mad, is altogether erroneous. And the practice of killing a dog because he has bitten a human being, in order to prevent the occurrence of hydrophobia in the latter, is a procedure as ridiculous as useless. If the dog goes mad *after* the infliction of the bite, there is no danger whatever of hydrophobia to the person bitten.

WOUNDS FROM SCRATCHES BY A CAT.—These are best treated by first well washing the part with warm water, and if deep, applying a poultice. If not deep, a little simple dressing should be used. All slight scratches, whether from the claw of a cat or from the tooth of a horse or dog, may be sucked, as the ready means of preventing future irritation.

WOUNDS CAUSED BY SNAKES.—There are in India twenty known genera of snakes, of which only three are poisonous. Of the genera, there are 180 individual innocuous species, and 33 poisonous.

There are two varieties of poisonous snakes, the *Viperine* and the *Colubrine.* Such snakes have only two teeth in the upper jaw, and these are the erectile poison fangs. There are other teeth in the palate of this class, but no other teeth in the jaw proper. The poisonous classes of snakes may be distinguished by the large erectile poison fangs deeply indented on their convex surface, and situated in the upper jaw midway between the eye and the nostril. These are twice the size of any other teeth. In addition to the above distinctions, the *Viperine* poisonous snakes have stumpy tails and ill-looking triangular-shaped heads. The *Colubrine* poisonous snakes are hooded. Neither have the *loreal* shield.*

The bites of poisonous snakes, as a rule, show two marks, thus, : When there are more than two marks, ∷ it may be generally safely assumed that the reptile was not poisonous, or that the wound has not been inflicted by the poison fangs.

It does not follow that even when a fresh, vigorous cobra bites, the injury will be fatal. The poison fang is of a crooked shape, and it often happens that when the reptile, in his fright or in his rage, darts on his enemy from an angle, the position will not admit the entrance into the skin of the curved point of the venom tooth. In such a case the poison tooth lies almost innocuous, as a very curved sword would do if it were thrown at a man so that the back of it and not the point should strike him. Yet these are the snake wounds which look the most terrible. The reptile, feeling he has missed his mark, keeps biting and sawing at the flesh with the fish-like teeth of the palate, and when he lets go his hold, blood and slime stream from the bite. Yet the person bitten may perhaps not have received the hundredth part of a grain of poison into the system.

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* A crescentic-shaped scale, directly behind the nasal shield.

It is such cases, or cases of bite of non-venomous snakes, which are frequently reported as cured by the numerous nostrums constantly appearing before the public in the Indian journals.

Again, it is a known fact that venomous snakes, at particular periods of their lives and at particular periods of the year, especially about the first fall of rain, possess more poisonous venom than at other times. *Secondly*, a snake, irritated by injury or other causes, will secrete more poisonous venom. *Thirdly*, the poison will take greater effect in the system of a person already in a bad state of health, and therefore predisposed to disease. *Lastly*, if the bite takes place through clothing, much of the poison must be received by the intervening substance, and less will therefore penetrate the skin.

In all this we have additional explanation of the apparent recovery of persons from snake-bite, when treated by the numerous nostrums at one time or other vaunted as certain remedies.

It should be recollected that venomous snakes will not bite unless meddled with. A snake will, as a very general rule, retire if it can. And the fact of many Natives being bitten when asleep does not affect the truth of this assertion. A snake gliding along, passes over the leg, foot, hand, or arm of the sleeper, when the latter, feeling something, unconsciously moves, and the snake, alarmed, strikes in self-defence. Similarly a person is walking through a jungle path, or in the dark. A snake lies in the centre, or at the side, probably asleep. It is disturbed, alarmed, perhaps touched by the passenger, and darts, in self-defence, at the intruding object. Of all snakes the *Kerait* is the most vicious, and most inclined to attack without cause. But usually a snake will creep out of harm's way, and not prove aggressive. It is therefore a good precaution when proceeding in the dark about snake-haunted localities, to make as much noise as possible, by treading heavily, or by tapping on the ground with a stick. Reptiles lying on the path will then use their best endeavours to escape.

The parts of the body most frequently bitten are the fingers, toes, ankles, and hands, and the person, if asleep, is at once aroused by the pain. This is not very severe at first, but soon increases in intensity, extending rapidly upwards towards the body. There is faintness, sickness, and probably vomiting. The breathing becomes short and laboured, the pulse quick and intermittent. Cold sweats and often convulsions succeed, and the patient becoming insensible, sinks, sometimes in a few hours. More commonly, however, the case is prolonged several days. The wound becomes discoloured, the limb swells, blisters may form near the injured part, abscesses may occur in any part of the limb, and the glands of the armpit or groin (according to the limb injured) enlarge, inflame, and suppurate. The absorbents are also inflamed, appearing on a fair skin as red lines stretching up from the wounded part towards the groin or armpit. Sometimes there is diarrhœa, at others hæmorrhage or bleeding from the snake bite, or from scarifications made in the neighbourhood. In some cases there is also bloody urine. At a later period there may be bleeding from the nose, bowels, or gums. The depressing effects of fear will, in most instances, aid the operation of the poison; and the symptoms will be more or less intense according to the amount of venom inserted into the wound.

It is stated that occasionally after snake bite the person sinks into a lethargic condition, without pain, and remains insensible till life is extinct. This immediate lethargy from snake bite is certainly uncommon, but as well-authenticated instances are on record, the possibility of such symptoms should be borne in mind.

Treatment.—Although no antidote has yet been discovered for snake bite, there is no doubt that medical and surgical treatment often saves the lives of persons thus injured. First, if possible, tie a tight bandage or string round the limb, a few inches *above* the wound. Then let the wound be well sucked; or cut the part out; or, if in a position where it cannot be cut out, freely scarify it with a lancet or sharp penknife by small cuts all round. After bleeding has ceased, a red-hot iron, or a drop of nitric or carbolic acid, may be passed into the wounded part. If the patient will not submit to the knife, these applications should be used at first. If these things are not available, suction should be continued, care being taken that the person performing this operation has no sore on the mouth or lips. Or if this cannot be done, a pinch of gunpowder may be placed in the wound and flashed.

The strongest stimulant at hand, whether brandy, whisky, rum, wine, or sal volatile, should be given at once. Sal volatile should be given in half-ounce doses; spirits in ounce doses, diluted with sufficient water, so that the stimulant used may be swallowed without difficulty. If wine is used, four-ounce doses should be given without water. Whatever stimulant is used, the dose should be repeated every fifteen minutes until the first depressing effect of the poison subsides, and reaction sets in. Mustard poultices should be applied over the stomach and heart, and the patient should be induced to walk about, or other means should be used to prevent the drowsiness which commonly comes on. At a later period the limb should be anointed with salad oil, and poultices should be applied to the wound. If red lines form, stretching from the wound towards the body, they should be fomented. Fomentations and poultices must also be applied to any swelling which may appear about the armpit or groin; and if matter forms in such positions, it must be evacuated by means of incision with a lancet.

The patient should have good nourishing diet and wine, so soon as the first effects of the poison pass away.

[The best stimulant is strong *liquor ammoniæ* or *eau de luce*, which should be given if at hand, in thirty-drop doses, diluted with two tablespoonfuls of water every fifteen minutes, instead of the brandy or other stimulants mentioned above. Instead of mustard poultices, a handkerchief wet with liquor ammoniæ, or with spirits of turpentine, should, if available, be applied over the heart and stomach.]

WOUNDS FROM SCORPIONS AND CENTIPEDES.—In most parts of India these pests are very numerous, and may be expected amongst old rubbish, under old rolls of carpet, or beneath stones, or the *débris* of building. The parts injured swell, smart, ache, and frequently the absorbent vessels running from the sting are implicated, as evidenced by a red line, or lines, seen in the skin. Death following scorpion sting has been recorded in at least three instances, but ordinarily to a person in good health such injuries will not prove dangerous. The best applications are poultices made of equal parts of opium powder and ipecacuanha powder, or if both are not available, of ipecacuanha powder alone; or a rag moistened with tartaric acid dissolved in water. If the latter is used, as much of the acid should be dissolved in the water as the latter will take up. If these applications are not at hand, a rag steeped in vinegar should be laid on the part; or a strong solution of common salt and water may be employed. The inflamed red line of absorbent vessels should be fomented, and it will generally be advisable to give some aperient dose.

WOUNDS FROM WASPS OR BEES.—One or two stings from these insects are not ordinarily of much consequence, although irritating and sufficiently painful. But when, as sometimes happens, a swarm of wasps attack a person, the number of stings inflicted may induce serious or even dangerous illness. Or in delicate persons or children several stings may cause severe constitutional symptoms. Under such circumstances a stimulant will be probably first required, after which the stings should be extracted. This is best effected by pressing the tube of a small key over the part injured, when the sting, if left in the wound, will probably start out, or a watery fluid will escape, carrying with it some of the venom or its effects. If a lens be at hand, it will be well to examine each wound with the glass, when perhaps the sting may be seen, and it may be extracted with fine forceps. Then the best applications are sal volatile, or vinegar and water, or eau de Cologne; or if these are not at hand, moist snuff or tobacco may be rubbed in. At a later period soap liniment may be used to remove any remaining swelling of the skin.

In cases of stings inside the mouth, or in the throat, the sting should be sought for and extracted if possible. Ice should be kept constantly in the mouth, and leeches should be applied outside. If danger of suffocation appears urgent, the operation of opening the *trachea*, or windpipe, may be required.

WOUNDS FROM MUSQUITO BITES.—The effect of a musquito bite or sting, does not altogether depend on the fact of the introduction of the small proboscis of the insect into the skin, for so small an object would scarcely create the irritation so often following a musquito sting. The fact is that there is not only the wound thus inflicted, but also the discharge of an irritating fluid into the wound. This liquid may sometimes be seen exuding from the trunk of a musquito like a minute drop of clear water. A musquito bite usually rises into a small white hard lump, which on further irritation may inflame, suppurate, and become a very obstinate sore, particularly if the individual be either too plethoric, debilitated, scorbutic, or otherwise out of health. The best application at first is probably vinegar and water. Or water alone may be well rubbed into the part, so that some of the fluid may enter the minute wound made by the sting, and dilute the poison. Any sore afterwards forming must be treated in the ordinary manner, as if arising from other causes.

WOUNDS FROM LEECHES.—In some parts of India small land leeches abound. They are about one inch long and very thin, but when distended appear much larger. From trees on which they are often found they will insinuate themselves through every aperture of clothing, or down the back of the neck. They are of a yellowish brown colour, streaked with black, with one greenish line along the whole length of the back, and a yellow one on each side, so that they are not easily seen when hidden among green leaves or grass. Their bites scarcely inflict any pain at the time, but they cause a very uncomfortable after irritation, and in persons in a bad state of health often occasion ulcers, which are difficult to heal. The bleeding should first be stopped (*vide* p. 364), and then a cooling lotion should be applied. Any ulcer forming must be treated on ordinary surgical principles.

When passing through water or marshes in which these leeches abound, 'leech gaiters' may be worn. These are very long closely woven cotton stockings, passing over the socks and under the ordinary boot and clothing.

WOUNDS FROM FLEA BITES.—Flea bites are recognised by the appearance of small darkish red spots, surrounded by a circle of paler colour. It is well to become familiar with the ordinary appearance of flea bites, as they have sometimes been mistaken for various eruptions accompanying different kinds of fever, or *vice versâ.* Vinegar and water is the best application to allay the irritation from flea bites, and cleanliness is the best means of preventing their swarming in

Indian houses, which at certain seasons of the year is so often the case.

WOUNDS FROM BUG BITES.—These insects cause an itching swelling, sometimes red, sometimes white, almost resembling the musquito bite. Vinegar and water is the best application. Taking furniture to pieces and placing the ends in boiling water is the best method of destroying bugs. Pouring turpentine occasionally between the joints is the best method of preventing their re-accumulation.

WOUNDS FROM LICE.—Lice bites present an itching whitish swelling. Liee generally inhabit the hairy scalp, laying their eggs (called *nits*) near the roots of the hair. A sure and easy method of killing lice is washing the head with solution of carbolic acid (one part of acid to fifty parts of water). Or the hair may be saturated with oil, which kills the lice by obstructing their trachea, or breathing apparatus, and thus stopping respiration. Or carbolic acid and oil may be used together in similar proportions. But neither measure may suffice to kill the eggs. If lice still appear after using carbolic acid and oil, the head should be shaved, and a mixture of equal parts of pomatum and mercurial ointment may be rubbed on the scalp every other day for three days, an oilskin cap being worn in the meantime.

ADDENDUM.

As confinements frequently take place in India without skilled assistance, the following remarks on *Labour* are considered advisable. They are inserted as an *addendum* to the foregoing Medical and Surgical chapters, under which the subject could not properly find a place, *Labour* being neither a disease nor an injury.

In the first place, on the symptoms of approaching labour, as mentioned below, the patient's bed should be prepared, and a hard or horse-hair mattress is preferable to any other kind. On this, over the usual blanket and sheet, and near the centre of the bed, there should be placed, first a piece of oiled cloth or india-rubber sheeting, then a blanket folded four times, then a sheet doubled in similar manner. This is intended to absorb moisture and water, and to prevent the mattress on which the woman has to lie afterwards becoming wet. Care should be taken that there is a slight declivity from the shoulders downwards, lest in case of bleeding, or from a large quantity of 'waters,' the patient may be made uncomfortable. After the labour is over, and the oiled cloth and extra blanket and sheet are removed, the bed should be quite dry, and fit for the woman to repose on.

The mother's dress should also be suitable, and should consist of garments which may be most easily removed after the labour.

The position found most convenient both for the attendant and the woman, is for the latter to lie on her left side with the hips near to the edge of the bed, and the knees drawn up towards the abdomen, and a pillow may be placed between the knees. It is not however necessary for the patient to take to her bed, until the pains become of a bearing-down character as mentioned below.

LABOUR.—Labour is the common term for a confinement or delivery. It usually takes place at the end of the ninth month, or at the expiration of 280 days from the time of conception. If the birth of the child takes place before six months, it is called an abortion or miscarriage (*vide* MISCARRIAGE), and when between six and nine months, it is known as premature labour. A full-time labour, as a rule, is a safe and natural process, and attended with very little danger to either mother or child. The signs of *approaching* labour are a sinking or lessening of the size of the abdomen, and a mucous discharge. Its *commencement* is denoted by pains in the lower part of the abdomen, gradually settling down in the back, and known as 'bearing-down pains,' and after the appearance of such pains the waters generally break. There is also often shivering, nausea, and vomiting. The pains return after gradually lessening intervals, while they increase in duration and violence. The time of labour varies from six to twelve hours, being generally longest in those having a child for the first time. In at least 95 cases out of every 100 the head of the child first emerges, the rest of the body soon following. In the absence of medical assistance, the main objects of care are to support the *perinœum*, or that part of the person of the mother exposed to pressure as the head passes, to free the child's mouth from any accumulated discharge or mucus, to see that the womb well contracts as soon as the child is born, and to divide the navel string, as described in Chap. V. p. 561.* If the womb is well contracted, it may be felt in the lower part of the bowels in the shape of a *round hard ball.* If the womb cannot be thus felt, hæmorrhage or bleeding may occur, and pressure should be made with the hand, which will induce contraction. In from ten to twenty minutes after the child is born the after-birth comes away, but it is sometimes longer descending, and the cord must not be pulled to hasten its progress.

The above description refers to a perfectly natural and straightforward labour; but sometimes labour is preceded for some days or hours by what are called 'false pains.' Such pains are felt in the bowels, and not in the back; they are of a *straining*, and not of a *grinding* character, and they are not accompanied by any expulsive or 'bearing-down' efforts. Such false pains are usually caused by some error in diet or intestinal irritation, and may generally be removed by a dose of castor oil, followed by an opiate, as Recipe 75, and by rest in the recumbent posture.

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* For the general treatment of infants after birth *vide* Chap. V.

When the after-birth is removed, an abdominal binder or bandage should be applied. This should consist of a piece of linen sufficiently broad to embrace the whole of the abdomen from above the pit of the stomach. The best kind of binder is one cut to fit the hips, overlapping and tying laterally with strings. It should be fastened firmly, but not too tightly, and it should be worn during the whole time the patient remains in bed. Some accoucheurs apply this bandage after the birth of the child, but it is well to defer its use till the *after-birth* has passed, making occasional pressure with the hand over the womb, both to induce contraction, and to ascertain if the organ remains well contracted in the shape of a hard round ball. After the adjustment of the bandage all soiled clothing should be taken away, and the woman should be allowed to lie still for an hour and a half, or for a longer period should any bleeding have occurred. If this happens, the woman should be treated as detailed at page 468, as the measures to be adopted for bleeding *after* delivery, and the child should be put to the breast. It should however be understood that there is often some loss of blood, so that a slight appearance of the kind need not excite alarm, especially if the womb can be felt, hard, round, and firm. It should be recollected that nothing is more improper or more likely to give rise to unpleasant symptoms, of which bleeding is one, than permitting a patient to sit up soon after her confinement. If after the birth of a child the mother is very much exhausted, a cup of strong tea, not too warm, is the best stimulant. After the woman has well rested, and perhaps slept a short time, the private parts should be washed with milk and water. This washing should be repeated several times daily, until after four or five days, when the parts become less tender, tepid vinegar and water, in the proportion of one ounce of vinegar to ten ounces of water, may be substituted for the milk and water; or glycerine soap may be used. As a female after a confinement is susceptible to cold, care should be taken to avoid exposure to draughts, although it is necessary that the chamber be maintained cool and airy. All excitement from visitors should be avoided. Until after the sixth day it will usually be better for no solid food to be allowed.

Directions should be given for the patient to pass urine within six or seven hours after delivery, and this should be done as nearly as possible in the horizontal posture. Or if it cannot be made in such position, the patient may turn on the hands and knees. If there be still difficulty, the lower part of the bowels and the private parts should be fomented with hot water. Owing to the distensible state of the belly the patient will often wait longer than proper if not reminded to make water, and the consequences may be very troublesome. This point, therefore, should always be specially enquired into.

The state of the bowels after delivery is also of great importance. On the evening of the second or morning of the third day, if the bowels have not been opened naturally, an aperient, as a tablespoonful of castor oil, or a dose of senna tea, should be given. The repetition of the aperient medicine must be regulated by the state of the bowels previous to the labour. If there be reason to suspect any accumulation in the lower bowel, as often occurs during the later days of pregnancy, and is known by the passage of hard round lumps of fæcal matter, an enema of warm water should be administered. If the patient does not suckle her child, purgatives will be the more necessary for the relief of the breasts. In the latter case saline aperients, as Recipe 2, or citrate of magnesia (*vide* p. 13), which is a milder laxative, will be found most useful.

Attention must also be directed to the state of the discharge called *lochia*, or in popular language 'the cleansings.' At first this discharge is red like blood, then becomes thin and watery, changing colour to greenish yellow, and at last appearing only like soiled water. The duration of this discharge varies a good deal. In some patients it ceases naturally, and without bad effects, a few days after delivery. In other cases it does not cease until the end of three weeks or a month. In quantity, also, it varies much. It has a peculiar odour impossible to describe, but which is more powerful in some instances than in others. As this secretion is necessary, the sudden interruption is generally attended with evil consequences.

The first passage of this discharge is commonly accompanied by more or less pain called 'after pains.' The commencement of the after pains, which depend on contraction of the womb, is generally felt about half an hour after delivery, and they ordinarily cease in thirty or forty hours, though they may continue longer. During their presence the discharge increases, and black clots of congealed blood are not unfrequently expelled. After pains are within certain limits salutary; they prevent bleeding, diminish the size of the womb, and expel its contents. The application of the child to the breast often brings on or aggravates the after pains. Unless more than ordinarily severe, no medicine should be given; but if very troublesome, an opiate, as chloral, Recipe 75, may be administered, and the bowels may be fomented.

In ordinary cases the breasts remain quiescent for about twenty-four hours, or longer in first confinements, but soon after that begin to enlarge, with stings of pain, their substance becoming heavier and more tense. The patient may suffer from shivering, heat of skin, pain and soreness of the breasts, the pulse is quickened, and secretion of milk takes place. The breasts should not be interfered with for six or seven hours, when the infant may be applied. But frequent application of the child to the breast is not desirable, as fruitless sucking renders the nipple hot, irritable, and tender. If much feverishness attends the secretion of milk, saline purgatives as before mentioned (Recipe 2), and citrate of magnesia draughts (p. 13), should be given, while the breasts may be fomented, and they may also be *gently* rubbed with salad oil every four or five hours. If the nipples are short and badly formed, or, as sometimes happens, the breasts swell so much as to prevent the child seizing the nipples, they should be drawn out by a breast-pump; or a larger child or a grown-up person should suck them first. Or a bottle having been filled with hot water should be quickly emptied and the mouth of the bottle applied over the nipple. A slight vacuum being formed by the heat in the bottle, the nipple will rise into the mouth. A better plan of using the bottle is to cut the end off a soda-water flask, when the nurse's mouth may be applied to the cut end, and the nipple may be sucked up into the neck of the bottle.

The foregoing relates chiefly to perfectly natural and straightforward confinements, but other circumstances may occur which are now briefly noticed.

1. *Presentation of the face.* Instead of the top of the head the face may present at the outlet. This is not very common, happening once in about 230 cases. When it does occur the labour is always more difficult and protracted. The life of the child is seldom in danger, but when born the face is always much swollen and disfigured, and unless the mother is prepared for this, the appearance may give a severe shock. In the absence of medical aid, it will be best to leave a face presentation alone, and wait patiently for the natural termination.

2. *Presentation of the feet.* One or both feet may come first, which happens once in about 100 cases. The birth is generally speedy and safe for the mother, but not always so for the child, which is apt to suffer from the circulation of the cord being obstructed by pressure during the birth of the

head. Footling cases should not be hastened in the early stage, as the longer the buttocks or breech are detained the greater will be the dilatation of the parts, and the birth of the head will be more easily effected. When the breech is expelled the cord should be examined, and if the pulsation of the cord has ceased, the birth of the shoulders should be hastened by pulling the body steadily down during the next pain. To have the toes of the infant turned to the back of the mother is the most favourable position for the birth of the head; and when the breech is expelled, if the toes are turned forward, the assistant should seize the breech in both hands, and during the next pain endeavour to turn the child round, while the birth of the shoulders is expedited. If circulation of blood is restored in the cord after the birth of the shoulders, there is little cause for anxiety for the safety of the child; but if there is no pulsation in the cord, it is necessary to assist at every pain and hasten the delivery of the head by pulling the shoulders down. The head being born, the assistant should examine the cord, and if it pulsates the child should not be separated for a few minutes until it begins to cry. If there is no circulation in the cord the infant should be treated as detailed for the apparently born dead, at page 562.

3. *Presentation of the breech.* This occurs about once in every 60 cases, and the labour is always tedious because the infant, being doubled at the haunches, requires a larger space. As a general rule no interference is required until the breech and feet are born, after which the case becomes converted into a footling one, and must be treated as detailed above, the body being turned if necessary, so that the toes are directed to the back of the mother, and the delivery being hastened or not, according as pulsation is absent or present in the cord.

4. *Presentation of the hand, commonly called 'cross birth.'* Presentation of the hand, or some portion of the

upper extremity, as the elbow or shoulder, occurs once in about 230 instances. When this happens, the assistance of a medical man is urgently required, as the operation of turning the child will probably be necessary.

5. *Twin births.* This occurs about once in every 70 cases. The presence of twins can seldom be detected before the labour, the increase of size being no true criterion, the same mother sometimes appearing as large when pregnant with one child, as she was formerly with two, owing to the presence of a large quantity of water. Sometimes by touching accurately over the womb, the presence of separate bodies can be distinguished. Sometimes the beating of two hearts at different points may be heard, which is the only positive sign. In twin cases, the presentation generally varies, the first being a head, and the second a foot case, or the reverse. After the birth of the first child, the presence of a second is known by the very slight reduction in size of the womb, which often appears nearly as large as before. Sometimes the after-birth of the first child comes away before the birth of the second infant, sometimes not till afterwards, and attempts should not be made to remove it, as it occasionally happens that there is only one after-birth for both infants. Having discovered that it is a case of twins, after the birth of the first infant, the womb should be stimulated to contract by keeping up a grasping movement of the fingers and thumb placed on the lower part of the bowels. Sometimes the birth of the second child follows that of the first in so short a space as ten minutes, but on other occasions there is no recurrence of pains for some hours after the birth of the first child. Under such circumstances, the woman should be allowed to rest until pains return, and she may take a little refreshment, as cool tea or arrowroot; the precaution being taken to examine frequently, lest bleeding may be going on. After the birth of the second child and the passage of the after-birth, especial attention must be paid to the contraction

of the womb, which having been much distended is the more likely to relax, and so permit bleeding to take place. The bandage should be applied, as mentioned at p. 462 and the womb should be pressed with the hand until it can be grasped as a firm hard ball.

6. *Hæmorrhage or bleeding.*—Hæmorrhage or bleeding may occur either *before* or *after* the birth of the child, but fortunately does not happen to an alarming extent more than once in 300 cases. Bleeding occurring *before* the birth of the child, generally depends on an unfavourable position of the after-birth, which is seated over, or too near the mouth of the womb, so that, as the latter dilates or increases in size, the vessels of the after-birth are torn. This kind of bleeding may occur at any time after the sixth month of pregnancy, but is more frequent between the eighth and ninth month, when the dilatation of the neck of the womb is greatest. In every case of bleeding before the birth or during pregnancy, absolute rest is necessary; the patient's room should be well aired, her food should be farinaceous only, her drink toast and water, or weak cold claret and water, and cold applications should be made to the privates. When recurring bleeding happens during the last months of pregnancy, the person should obtain medical advice as soon as possible, and the presence of a surgeon during the labour should be insisted upon, as should bleeding occur during the confinement, the delivery will require to be expedited; involving probably the operation of turning the child, which requires great energy, skill, and experience.

When bleeding occurs *after* delivery it may happen *immediately*, either before or after the expulsion of the after-birth, or it may come on some hours or even days after the confinement, when it is called *secondary hæmorrhage*. When bleeding occurs immediately after delivery it generally depends on feeble or irregular contraction of the womb. When the after-birth separates from that organ, loss of blood to some extent is the natural consequence, nor is the woman injured by a moderate loss, such as eight to ten ounces. But if the quantity exceeds such amount it produces weakness, fainting, and an alarming condition of prostration, the woman being pale, cold, and gasping for breath. Under such circumstances, the womb will be found soft and relaxed, and to induce it to contract firm pressure should be made over the lower part of the bowels, and if possible the womb should be firmly grasped in the hand through the skin of the lower part of the bowels. Cloths wet with cold water should be applied to the privates, iced or cold water should be given to drink, and the child should be put to the breast. Probably when the soft and relaxed womb is grasped or pressed, the blood contained within will be expelled, causing a fresh flow, and inducing attendants to think there is fresh mischief being done. But the blood collected in the womb has already escaped out of the blood-vessels, and is therefore useless to the system, and it must be expelled from the womb before that organ can contract. In addition to the above measures, or if they fail, cold water may be suddenly poured on the bowels from a height of two or three feet, and if a syringe is at hand cold water may be injected into the passage. In the meantime, if possible, the assistance of a medical man should be obtained, as an operation may be required.

When hæmorrhage occurs some hours or days after delivery, it may depend on partial relaxation of the womb, or on the retention of some part of the after-birth, or of a clot of blood preventing perfect contraction, and which the after pains are insufficient to expel. The application of cold wet cloths externally, and the injection of cold water are the most valuable means of relief, and the latter will facilitate the expulsion of anything which has been retained.

The pallid countenance and evident prostration of strength which arise from bleeding, render attendants anxious to administer wine or other stimulants. These however may, if given in too large quantities, increase the bleeding, by exciting the action of the heart, and the force of the circulation. Wine, or brandy and water, must therefore be given cautiously, and in very small quantities at a time, more with the view of refreshing the patient, than of increasing the force of the pulse. Often a little weak claret and water will be more desirable, especially while bleeding is actually going on. It must be recollected that the patient is not on any account to be raised into a sitting or upright posture, which would probably be followed by fatal fainting; and that perfect quiet is absolutely necessary.

[In any case of bleeding of the kind Recipe 63 should if possible be procured and used.]

Weird or 'milk-fever,' *Sore Nipples*, *Abscess of the Breast*, and *Puerperal Fever*, sometimes occurring during suckling, have been described in Chap. II. pp. 178, 69, 69, 179.

In addition to the above ailments, there is another malady to which women are occasionally subject after confinement, and which, although comparatively rare, requires mention here. This is called *Phlegmasia Dolens*, and consists of a painful elastic swelling of one or both legs, beginning generally in the groin and thigh, and thence extending downwards. It may come on from one to five weeks after delivery, and is commonly ushered in by shivering, fever, thirst, quick pulse, nausea, furred tongue, and pain in the loins. The swollen part is hot and tender, and presents a pale, shining appearance, while the power of moving the limb is nearly lost. Such cases generally do well, although recovery is tardy, and the limb may be stiff long afterwards, with tenderness, and perhaps the feeling of a cord beneath the skin in the course of the femoral vein, down the inner part of the thigh. When this affection occurs, the swollen part should be continually fomented with poppy-head infusion; saline purgatives, (Recipe 2) should be given to open the bowels; and saline mixture, No. 71, should be taken to act on the skin and urine, while pain may be relieved by opiates. After the acute stage, when pain, tenderness, and fever subside, the swollen parts should be gently rubbed twice daily with soap liniment, or with brandy and salad oil in equal proportions, and the limb should be enveloped in flannel. Generous diet, wine, and tonics will also be necessary.

[Iodide of potassium mixture (Recipe 45) should also be procured and given, as soon as the acute stage of the malady is over. And soap and opium liniment will be a better local application than the brandy and oil mentioned above.]

APPENDIX TO CHAPTERS II. AND III.

PRESCRIPTIONS.

THE prescriptions which can be made up from the small medicine case designed to accompany this volume, or from the articles easily procurable in the bazaars, are placed *first* under the following different headings, and are separated by a double line from the prescriptions which must be procured from chemists. The *first* prescriptions are those referred to in the *large* type of the preceding two chapters; the others, to be procured from chemists, are those referred to in the *small* type. In the few instances where it has been necessary to refer, in the large type, to prescriptions which cannot be compounded from the contents of the small medicine case, or from drugs procurable from the bazaar, the circumstance has been noted in the text.

Purgatives, Aperients, and Laxatives.

The above terms sufficiently denote the action of this class of medicines. The term Purgative is generally applied to a medicine acting more strongly on the bowels and liver than others, which are termed Aperients. Laxatives again are still less powerful in their action than aperients. Purgative medicines, and, to a certain extent, also laxatives and aperients, have distinct actions on different parts of the internal organs, and are therefore of use under different conditions of disease.

For the peculiar action of each medicine, Chapter I., p. 7, DESCRIPTION OF MEDICINES, should be consulted.

1. Take of Podophyllum	grain, one quarter.
„ Compound Rhubarb Pill	grains, two and a half.
„ Extract of Hyoscyamus	grain, one and a quarter.

Mix well, and make into one pill.

The pill above prescribed may be taken at night, and if not acting sufficiently, may be repeated in the morning; or what is generally better, an aperient draught, as Recipe 2, or citrate of magnesia (*vide* p. 13), or a Seidlitz powder, may be taken. Ordinarily one of the pills will be a sufficient dose, although occasionally some persons may require two.

The pill as above, is supposed to be carried ready made in the medicine chest designed to accompany this volume, and it is perhaps as good an aperient pill for general use, and especially for general use in India, as can be devised. It is therefore frequently referred to in the foregoing chapters for maladies for which nothing could be better suited. On the other hand, it is sometimes recommended (as indeed are various other prescriptions) as a substitute for medicines which could not be included in the medicine chest, or procured except from a chemist's. The prescription must therefore be accepted as one generally applicable, although not always the most desirable. But no pill yet devised will suit all people at all times. If therefore anyone consulting this book possesses a recipe which experience has shown acts satisfactorily, such recipe may, if preferred, be generally used when this prescription is recommended.

2. Take of Sulphate of Soda	drachms, six.
„ Tincture of Ginger	minims, twenty.
„ Water, distilled	ounces, two.

Mix well, and make a draught. An aperient, which may be taken alone, or which may be used in the morning to assist the action of pills taken overnight. Or if a quicker action is required, the draught may be taken three or four hours after the pills. The quantity of sulphate of soda may be increased by one or two drachms if the above prescription is not sufficiently powerful; or otherwise, if too strong, the amount may be diminished.

3. Take of Sulphate of Soda	drachms, six.
„ Quinine	grains, twenty.
„ Sulphate of Iron (the *Heera-Kusees* of the bazaars)	grains, fifteen.
„ Water, distilled	ounces, eight.

Mix well, and make a mixture. Dose—two table-spoonfuls every four hours. A tonic and aperient. Useful in affections of the spleen, and for amenorrhœa.

4. Take of Sulphate of Soda	drachms, six.
„ Dilute Sulphuric Acid	drachm, one.
„ Infusion of Rose Leaves	ounces, eight.

Mix well, and make a mixture. Dose—two table-spoonfuls every four hours. A cooling aperient with astringent action. Useful in miscarriage, menorrhagia, epistaxis, and in other cases when loss of blood occurs.

5. Take of Sulphate of Magnesia	drachms, six.
„ Tincture of Digitalis	minims, eight.
„ Camphor Mixture	ounces, two.

Mix well, and make a draught. An aperient and sedative. Useful in asthmatic attacks with constipation; also for apoplexy.

6. Take of Bicarbonate of Magnesia	grains, ten.
„ Bicarbonate of Soda	grains, eight.
„ Compound Senna Mixture	ounce, one.

Mix well, and make a draught. An antacid and aperient. Useful in dyspepsia and liver affections.

7. Take of Podophyllum Powder	grains, four.
„ Dilute Nitric Acid	drachms, two.
„ Water, distilled	ounces, three and a half.

Mix well, and make a mixture. Dose—a tea-spoonful in a wine-glass of water three times a day. In liver affections.

8. Take of Blue Pill	grains, five.
„ Calomel	grains, five.

Mix well, and make into two pills. A strong purgative.

9. Take of Blue Pill	grains, five.
„ Compound Extract of Colocynth	grains, five.

Mix well, and make into two pills. A moderate purgative.

10. Take of Compound Extract of Colocynth	grains, five.
„ Compound Rhubarb Pill	grains, five.

Mix well, and make into two pills. A mild purgative.

11. Take of Calomel	grains, five.
„ Compound Jalap Powder	drachm, one.

Mix well, and make a powder. A strong purgative, producing watery stools.

12. Take of Podophyllum Powder	grains, three.
„ Compound Extract of Colocynth	grains, thirty.
„ Ipecacuanha Powder	grains, four.

Mix well with a little gum, and divide into twelve pills. Dose—one twice a day. In liver affections, and for constipation.

13. Take of Extract of Aloes (Glacial)	grains, two.
„ Blue Pill	grains, three.
„ Extract of Conium	grains, three.

Mix well, and make two pills. A mild aperient.

14. Take of Pill Aloes and Myrrh	grains, three.
„ Blue Pill	grain, one.
„ Extract of Taraxacum	grains, two.
„ Extract of Stramonium	grain, one half.

Mix well, and make into two pills. Useful in asthma.

15. Take of Sulphate of Iron	scruple, one.
„ Extract of Aloes (Glacial)	grains, fifteen.
„ Powdered Rhubarb	scruple, one.

Mix well, and make twelve pills. Two for a dose. A good aperient, for weakly constipated persons.

16. Take of Powdered Rhubarb	ounce, one.
„ Powdered Ginger	ounce, one half.
„ Carbonate of Magnesia	ounces, three.

Mix well in a mortar. This compound is known as 'Gregory's Powder.' The dose is half a tea-spoonful to a tea-spoonful, in a little peppermint water. It is a useful stomachic laxative in cases of indigestion and acidity of the stomach.

It may also be used for children from two to three years old with great advantage in ten- or twelve-grain doses, when a mild purgative is required. It may be given at night, and be followed by a tea-spoonful of castor oil in the morning.

Tonics.

Tonics are medicines which impart 'tone' or strength to the system, and are therefore especially useful during convalescence from exhausting maladies, and in most debilitated conditions. Tonics act without stimulating the system, and are thus different from the class of medicinal agents called 'Stimulants,' of which ether and alcohol may be taken as the type. One variety of tonics, namely the preparation of iron, owes its virtues to its power of supplying a deficient element of the blood. The good effects produced by other varieties of tonics, as quinine and arsenic, are not so readily explained, their action being not so directly on the constituent parts of the blood.

17. Take of Quinine	grains, twenty-four.
„ Sherry Wine	ounces, two.
„ Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day.

18. Take of Quinine	grains, twenty-four.
„ Lemon Juice (fresh) . . .	drachms, two.
„ Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day.

19. Take of Isinglass	drachms, two.
„ Sugar, White	drachms, two.
„ Brandy	half a wine-glass, *or*
„ Sherry	one glass.
„ Nutmeg	a pinch.
„ Boiling Water	ounces, four.

Make a draught. A good stomachic tonic in diarrhœa.

20. Take of Quinine	grains, twenty
„ Dilute Sulphuric Acid. . .	drachm, one.
„ Tincture of Ginger . . .	drachm, half.
„ Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls every three or four hours.

21. Take of Citrate of Iron and Quinine	scruples, two.
„ Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls every three or four hours. Wash the mouth after taking the medicine.

22. Take of Tincture of Iron (*Steel Wine*)	drachms, two.
„ Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. For anæmia and debility. Wash the mouth after taking the medicine.

The preparation known as Carbonate of Iron is also a good remedy for those objecting to the taste of the tincture of iron. It may be taken in five- to ten-grain doses, in water; or it may be taken as a powder mixed with sugar, or alone; or, being almost tasteless, it may be sprinkled on the food. Iron lozenges may also be procured from the chemists.

23. Take of Sulphate of Iron	grains, twelve.
„ Dilute Sulphuric Acid	drachm, one.
„ Water, distilled	ounces, six.

Make a mixture. Dose—two table-spoonfuls three times a day. For anæmia and debility.

24. Take of Dilute Nitric Acid	drachms, two.
„ Tincture of Ginger	drachm, one.
„ Water, distilled, or Infusion of Orange Peel	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. As a tonic after dysentery or fever.

Note.—Infusion of orange peel is made by steeping one ounce of the outer part of the rind of orange in two pints of boiling water until the water is cold, and then straining.

25. Take of Sulphate of Iron	grains, nine.
„ Sulphate of Quinine	grains, twelve.
„ Dilute Sulphuric Acid	drachm, one.
„ Sulphate of Soda	ounce, one.
„ Sugar, White	drachms, two.
„ Water, distilled	ounces, twelve.

Make a mixture. Dose—two table-spoonfuls two or three times a day. For painful menstruation with constipation. As a tonic aperient, in affections of the liver or spleen.

26. Take of Syrup of the Iodide of Iron	ounce, one.

Dose—thirty drops three times a day in a wine-glassful of water.

27. Take of Arsenical Solution (Fowler's)	.	minims, forty.
„ Water, distilled . . .	.	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. This medicine should be taken about a quarter of an hour after meals. As a tonic; also used for the cure of ague, and in skin diseases.

After arsenic has been taken for some time (varying with different people from days to weeks), it produces certain characteristic effects. These are colicky pains in the bowels, and sometimes diarrhœa. There is also watering, itching, and irritation about the eyes, the whites of which organs become 'blood-shot,' and the eyelids feel stiff. These effects on the eyes show that the system has been brought under the influence of the medicine. In order to avoid pain in the bowels, and to prevent the arsenic passing away with diarrhœa, before the influence of the medicine has been well established in the system, arsenic should be taken after meals. By this procedure it is mixed with the food, and prevented coming into immediate contact with the internal coats of the stomach, which it would do, if taken when that organ is empty.

28. *Liebig's Raw Meat Soup.*—Take half a pound of raw meat, and mince fine. Add three quarters of a pint of water to which has been added four drops of strong muriatic acid and half a saltspoonful of salt. Stir well, and allow it to stand one hour. Strain through a fine sieve. This preparation is often taken when other food is refused. It should be made fresh once or twice daily, and given cold. (Muriatic acid is also called hydrochloric acid.)

Expectorants.

Expectorants are medicines which, acting on the lining membrane of the air-passages (bronchial tubes) leading to the lungs, and also, in some degree, on the general system, facilitate the passage of fluids secreted in the lungs and in the tubes leading to the lungs, in such maladies as cough, catarrh, bronchitis, and asthma. Of Expectorants there are two classes, viz. *Stimulating* Expectorants, as ammonia, ether, squills, opium; and *Depressing* Expectorants, as tartar emetic and ipecacuanha. As a rule, the latter class are chiefly used in bronchial affections of younger people; the former in similar maladies occurring in older subjects.

29. Take of Aromatic Spirits of Ammonia	drachms, two.
„ Spirits of Nitric Ether.	drachms, four.
„ Tincture of Ginger	drachm, one.
„ Water, distilled	ounces, five and a half.

Make a mixture. Dose—two table-spoonfuls every two or three hours. For asthmatic attacks and chronic bronchitis.

30. Take of Camphorated Tincture of Opium (*Paregoric*)	drachms, three.
„ Aromatic Spirits of Ammonia	drachms, two.
„ Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls every two or three hours. For asthmatic attacks and chronic bronchitis.

31. Take of Camphorated Tincture of Opium (*Paregoric*)	drachms, three.
„ Ipecacuanha Wine	drachms, two.
„ Spirits of Nitric Ether.	drachms, three.
„ Water, distilled	ounces, seven.

Make a mixture. Dose—two table-spoonfuls every three or four hours. For catarrh, bronchial, and lung affections. This is a useful medicine in smaller doses for children, for cough, bronchitis, inflammation of the lungs, and in the first stages of croup. The dose for a child one year old is one tea-spoonful; two years old, a tea-spoonful and a half.

32. Take of Camphor	grain, one.
„ Powdered Ipecacuanha	grains, three.

Mix well with a little gum, and make into a pill. May be taken every two hours for asthma.

33. Take of Tartar Emetic	grain, one.
„ Camphorated Tincture of Opium (*Paregoric*)	drachms, two.
„ Water, distilled and boiling	ounces, twelve.

Make a mixture and allow it to cool. Dose—two table-spoonfuls every two or three hours. For bronchitis, pleurisy, laryngitis, and pneumonia.

34. Take of	Camphorated Tincture of Opium (*Paregoric*)	drachms, three.
„	Ipecacuanha Wine	drachms, two.
„	Tincture of Scilla.	drachms, two.
„	Bicarbonate of Soda	scruples, two.
„	Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls every three or four hours. For catarrh and bronchial affections, especially when there are also dyspeptic symptoms or acidity of the stomach. It is a useful medicine for children in smaller doses, for cough, bronchitis, or in the first stages of croup. The dose for a child one year old is one tea-spoonful; two years old, a teaspoonful and a half.

35. Take of	Carbonate of Magnesia	grains, twenty-five.
„	Peppermint Oil	drops, two.
„	Water, distilled	ounce, one.

Make a mixture. Dose—a tea-spoonful three or four times a day. In hooping cough, for a child one or two years old. Before using the mixture, the bottle should be well shaken. It is also useful for the sickness of pregnancy, when the whole may be taken at once as a draught.

36. Take of	Sulphate of Zinc	grains, two.
„	Camphorated Tincture of Opium (*Paregoric*)	minims, sixty.
„	Water, distilled	ounce, one and a half.

Make a mixture. Dose—a tea-spoonful every four hours. For a child from one to two years old, for hooping cough.

37. Take of	Extract of Conium	grains, three.
„	Water, distilled	ounce, one and a half.

Make a mixture. Dose—a tea-spoonful three times a day. For a child from one to two years old with hooping cough. Shake the bottle before using.

Alteratives.

Alteratives are medicines given either to alter the condition of the blood—as already mentioned with reference to Tonic Medicines, *vide* p. 476—or, in larger or less frequently repeated doses, to alter the state of the secretions of the liver and bowels. This class comprises a large number of medicines, of which those mentioned in the following prescriptions are some of the principal.

38. Take of Compound Ipecacuanha Powder (*Dover's powder*)	grains, ten.
„ Quinine	grains, three.
„ Ipecacuanha Powder	grain, one.

Mix well, and make a powder. To be taken at bedtime. For dysentery, diarrhœa, and in liver affections. It may in some cases be necessary to omit the ipecacuanha powder from this prescription, if it causes undesirable nausea or sickness.

39. Take of Compound Ipecacuanha Powder (*Dover's powder*)	grains, five.
„ Quinine	grains, three.
„ Ipecacuanha Powder	grain, one.

Mix well, and make a powder. Dose—one three times a day. For dysentery, diarrhœa, and in liver affections. It may in some cases be necessary to omit the ipecacuanha powder from this prescription, if it causes undesirable nausea or sickness.

40. Take of Compound Ipecacuanha Powder (*Dover's powder*)	grains, two.
„ Quinine	grain, one.

Mix well, and make a powder. Dose—one night and morning for a child two years old. For a child one year old, half the quantity. For a child six months old, one quarter. Useful for infantile diarrhœa with fever.

41. To make *Lime Water*.—Place one ounce of quick-lime in two quarts of pure cold water. Let it stand for a few hours, and pour off the clear liquid for use. Dose—from one to three ounces, several times daily, with a child's food. Useful in teething, diarrhœa, indigestion, cholera.

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42. Take of Bicarbonate of Magnesia	grains, fifteen.
„ Oil of Aniseed	drops, two.
„ Water, distilled	ounce, one and a half.

Make a mixture. Dose—one tea-spoonful occasionally for an infant from six months to one year old, with flatulence or 'wind on the stomach.' At less than six months old, half a tea-spoonful. Useful also for the sickness of pregnancy, when the whole may be taken as a draught.

43. Take of Calomel . . . . . grains, two.
„ Extract of Opium . . . grain, one quarter.

Mix well, and make into a pill. Dose—one every three or four hours. Used when the specific action of mercury on the system is required, as in acute inflammations.

Calomel (*Hydrargyri subchloridum*) as prescribed above is a heavy white powder, nearly tasteless and insoluble in water. It is obtained by a chemical process from sulphate of mercury and common salt. Mercury is a liquid metal, and in its ordinary state has little or no action on the human system; but when amalgamated with some powder or other substance, so as to reduce the mercury into a state of very fine subdivision, it becomes possessed of powerful medicinal properties. In this condition it becomes partially oxidised, and the metallic appearance is lost. Mercury in any shape was long esteemed one of the most important of medicines; and although now less used than formerly, it must still be considered an agent of great therapeutical value. It is of use more or less in all inflammations, as it tends to diminish the excessive amount of fibrine or carbonaceous material present in inflammatory blood. From this action, if long used, it causes wasting and leanness. It is purgative, and may be used in many forms of dyspepsia and intestinal derangements, when it does good by stimulating the flow of bile. It also acts as a diuretic, stimulating the flow of urine. It has a peculiar action on all glands, particularly on the salivary glands, increasing the flow of saliva from these parts, and eventually causing inflammation of the mouth, commonly called *Salivation*. Lastly, it has a peculiar specific power over primary syphilis, or venereal disease, often preventing, if given cautiously and judiciously, the occurrence of what are termed 'secondary symptoms.'

Calomel is possessed of all the medicinal properties attributed to mercury. In small doses, as five grains for an adult and one grain for a child, it is purgative, acting chiefly on the liver, and producing a flow of bright yellow bile. When acting as a purgative it also exerts a cooling effect, diminishing the amount of inflammatory matters in the blood. In smaller and frequently repeated doses, as two grains every three or four hours for an adult, it does not, especially if given with opium (as in Recipe 43), act as a purgative. Administered in this way it produces the more characteristic specific effects of mercury, first evidenced by a metallic taste in the mouth and increased discharge of saliva, and afterwards by soreness of the gums, looseness of the teeth, ulceration, and the other symptoms of salivation, as previously described at page 262. In some persons these effects present in a few hours, in others not for some days. It is, however, *never necessary* to press mercury until salivation is produced. All the good results to be expected from the remedy will accrue, as soon as a slight metallic taste in the mouth, or increased secretion of saliva, shows that the influence of the mercury is felt in the system. It may be necessary to maintain this condition for an indefinite period by repeating the mercurial dose at less frequent intervals; but if possible the influence should not be permitted to pass beyond this stage. By a judicious control of the purgative and specific effect of calomel on the human frame, it is beneficial in many maladies, of which biliary and liver derangements, constipation, apoplexy, dropsical affections, syphilis, may be mentioned.

It should be a rule before prescribing calomel, or indeed any preparation of mercury, to enquire if there be any peculiarity of constitution permitting very small doses of mercury to affect the system; for it occasionally happens, owing to some unexplainable constitutional idiosyncrasy, that even one dose of calomel or blue pill will produce salivation, and to such persons no preparation of mercury can be safely given. Neither should mercurials of any kind be given to children if their use can be avoided. But there are some ailments mentioned in the preceding chapters, for which other medicines are not so well adapted as mercurials; which, carefully administered in the manner recommended, cannot do harm, and will prove most beneficial. Whenever calomel is given to children, it should be held in mind that this preparation produces in children unnatural-looking stools, having a greenish slimy appearance, and care must be taken that more mercurials are not administered with the view of correcting the condition they induce. The use of mercurials, and of calomel especially, and more particularly when children are the patients, requires great care—so much so that some would not admit such medicines into a family medicine-chest. But the person qualified to use a *Family Medicine Manual*, and a family medicine-chest, may be, after the cautions as above (repeated in various parts of this work), safely entrusted with the limited use of mercurials as here prescribed, and from which, if the directions are fairly carried out, much good will result, and no possible harm can ensue. In the use of calomel or other preparations of mercury, the truth as usual lies between two extremes: it is highly useful, but susceptible of abuse. The tribe of quacks have always found it profitable to inveigh against all forms of mercury, whilst many of them at the same time employ the most powerful of its combinations. The most useful and in the main harmless preparations are those here prescribed. A very useful preparation of mercury—viz., 'grey powder,' or *hydrargyrum cum cretâ*—has been rejected, as it has sometimes been found to deteriorate and become poisonous from the effects of Indian climate.

44. Take of Blue Pill	grains, two.
„ Extract of Opium . . .	grain, quarter.
„ Ipecacuanha Powder . . .	grain, quarter.

Mix well, and make a pill. Dose—one every three or four hours. In dysentery, or bad diarrhœa.

This prescription, if taken sufficiently long, will, like Recipe 43, induce the specific action of mercury in the system. But it is not generally given for this purpose, Recipe 43 being the most quick and certain in its action.

45. Take of	Iodide of Potassium	drachm, one.
,,	Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. For syphilitic diseases.

46. Take of	Bromide of Potassium	drachm, one.
,,	Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. For convulsions and epilepsy.

Note. — Both iodide and bromide of potassium as contained in the two preceding Recipes (Nos. 45 and 46), after being taken for some time (days in some persons, weeks in others), may produce symptoms of cold in the head, sore throat, or an eruption of small pimples on the body. When this occurs the medicine should be stopped.

47. Take of	Powdered Rhubarb	scruple, one.
,,	Sulphate of Soda	scruple, one.
,,	Aromatic Spirits of Ammonia	drachm, one half.
,,	Peppermint Oil	drop, one.
,,	Water, distilled	ounces, two.

Make a draught. For acidity of the stomach, and in the sickness of pregnancy.

48. Take of	Solution of Potash	drachm, one.
,,	Tincture of Hyoscyamus	drachms, two.
,,	Tincture of Cinchona	drachms, two.
,,	Infusion of Buchu	ounces, six.

Make a mixture. Dose—two table-spoonfuls three times a day. For chronic affections of the bladder.

49. Take of	Bicarbonate of Soda	drachm, one.
,,	Tincture of Hyoscyamus	drachms, two.
,,	Decoction of Pareira	ounces, six.

Make a mixture. Dose—two table-spoonfuls three times a day. For chronic affections of the bladder.

50. Take of Tartaric (or Citric) Acid	drachms, two.
„ Aromatic Spirits of Ammonia	drachms, two.
„ Water, distilled	ounces, eight.

Mix, and allow effervescence to subside. Dose—two table-spoonfuls three times a day. For scurvy.

51. Take of Bicarbonate of Soda	drachms, two.
„ Colchicum Wine	drachms, two.
„ Spirits of Nitric Ether	drachms, two.
„ Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. For gout or rheumatism.

52. Take of Bicarbonate of Soda	drachms, two.
„ Tincture of Rhubarb	ounce, half.
„ Tincture of Ginger	drachm, one.
„ Spirits of Chloroform	drachm, one.
„ Water, distilled	ounces, six.

Make a mixture. Dose—two table-spoonfuls three times a day. Useful in jaundice.

53. Take of Extract of Taraxacum	drachms, two.
„ Dilute Muriatic Acid	drachm, one.
„ Infusion of Gentian	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. Shake the bottle before using. Useful in jaundice and for liver affections.

54. Take of Dilute Nitric Acid	drachm, one.
„ Dilute Muriatic Acid	drachm, one.
„ Tincture of Ginger	drachm, one.
„ Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. In affections of the liver. After taking this medicine, the mouth should be well washed. Muriatic acid is also called hydrochloric acid.

55. Take of Bicarbonate of Potash	drachm, one and a half.
„ Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. This prescription is also sometimes useful as a lotion for external use in skin diseases.

56. *Effervescing Draughts.*—These may be made as follows: Dissolve

twenty grains of Bicarbonate of Potash in two ounces of water, and add fourteen grains of Citric Acid when about to be taken.

Or, dissolve seventeen grains of Bicarbonate of Soda in two ounces of water, and add ten grains of Citric Acid. For acidity of the stomach.

Or, dissolve two drachms of Bicarbonate of Soda in eight ounces of water, and place in a bottle. Dissolve one drachm of Tartaric Acid in four ounces of water, and place in another bottle. The dose is two table-spoonfuls of the Soda Mixture with one table-spoonful of the Acid Mixture. Useful in cases of fever, and in the sickness of pregnancy.

Effervescing Mixture with Chloroform.—Add to the Soda Mixture given in the last para. twenty minims of Chloroform. The Soda mixture containing the Chloroform should be well shaken before being used. Very useful in the sickness and indigestion attending pregnancy, also for sea sickness.

57. Take of	Bicarbonate of Potash . . .	drachm, one.
„	Nitrate of Potash . . .	drachm, half.
„	Tincture of Ginger . . .	drachm, one.
„	Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. For indigestion or rheumatism attended with scanty, high-coloured urine.

Astringents.

Astringents are medicines which, acting on different parts of the system, diminish the secretions of various organs. They also, applied locally, contract the mouths of bleeding blood-vessels, and prevent the continuance of bleeding or hæmorrhage, when the loss of blood takes place from small vessels. The principal remedies of this class are preparations of iron, alum, lead; acids, particularly gallic acid; prepared chalk, and opium.

58. Take of	Powdered Alum . . .	drachm, one.
„	Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls every four hours. For miscarriage, menorrhagia, chronic dysentery.

59. Take of Dilute Sulphuric Acid	drachm, one and a half.
„ Tincture of Ginger	drachm, one.

Make a mixture. Dose—two table-spoonfuls every four hours, For miscarriage, or bleeding from the lungs. After taking this medicine the mouth should be well washed out.

60. Take of Acetate of Lead	grains, three.
„ Tincture of Opium	drops, five.
„ Water, distilled	ounce, one and a half.

Make a draught. To be taken every three or four hours. For bleeding from the lungs, or *hæmoptysis*.

61. Take of Dilute Sulphuric Acid	minims, twenty-five.
„ Tincture of Opium	drops, eight.
„ Water, distilled	ounce, one.

Make a draught. To be taken three times a day. For bleeding from the lungs (*Hæmoptysis*), or for bleeding from the stomach (*Hæmatemesis*). Useful also in diarrhœa. The dose for a child one year old is a teaspoonful or one drachm.

62. Take of Gallic Acid	grains, five.
„ Water, distilled	ounces, two.

Make a draught. To be taken three times a day. For bleeding from the lungs or stomach, or in scurvy, diarrhœa, and dysentery.

63. Take of Acetate of Lead	grains, three.
„ Extract of Opium	grain, quarter.

Mix well, and make a pill. One to be taken three times a day. For almost any variety of bleeding or hæmorrhage. Also in diarrhœa and dysentery.

64. Take of Compound Chalk Powder with Opium	grains, five.
„ Bicarbonate of Soda	grain, one.
„ Powdered Alum	grain, one.

Make a powder. To be taken every night, or in bad cases, every night and morning. For infantile diarrhœa and dysentery. Forty grains of compound chalk powder with opium (*Pulvis Cretæ Aromaticus* [*vel compositus*] *cum Opio*) contain one grain of opium. Therefore five grains of the compound chalk powder contain one-eighth of a grain of opium. The powder may be given to a child of one and a half to two years old. Half the powder at one year old; a quarter at six months.

65. Take of Powdered Extract of Opium	grain, half.
„ Prepared Chalk	grains, twenty-four.
„ White Sugar	grains, twenty-four.

Mix well, and divide into twelve powders. Dose—one every four hours for a child one year old. Half the powder at one year old; a quarter at six months. Each powder contains the twenty-fourth part of a grain of opium. For infantile diarrhœa and dysentery.

Stimulating Sedatives.

Stimulating Sedatives are stimulating medicines, combined with sedative or soothing agents. This union is often found most advantageous in a variety of painful affections accompanied by faintness or debility, as for diarrhœa, cholera, colic, painful menstruation, and some forms of dyspepsia.

66. Take of Chloroform	drachm, one.
„ Aromatic Spirits of Ammonia	drachm, one.
„ Spirits of Nitric Ether	drachm, one.
„ Brandy	ounce, one.

Mix. Dose—one tea-spoonful in a glass of water. Dose for a child six months old, three or four drops; one year old, six or seven drops; two years old, ten or twelve drops in a little water. For diarrhœa and cholera. The medicine should be kept in a well-stoppered bottle, and the bottle should be well shaken before being used.

67. Take of Chloroform	drachm, one.
„ Aromatic Spirits of Ammonia	drachm, one.
„ Chlorodyne	drachms, two.
„ Brandy	ounce, one.

Mix. Dose—one tea-spoonful in water every three or four hours. For diarrhœa and cholera. This and Recipe 66 should be taken in as much water as will dilute the compound, so that it may not be unpleasantly strong to swallow. A large wineglassful will be the quantity of water suited to most people. Shake the mixture before using.

68. Take of Prepared Chalk	drachm, one.
„ Aromatic Spirits of Ammonia	drachms, two.
„ Tincture of Opium	minims, forty.
„ Camphor Mixture	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. For dyspepsia and diarrhœa.

69. Take of Benzoic Acid	drachm, one.
„ Carbonate of Ammonia	drachm, one.
„ Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. For chronic cystitis, certain urinary disorders, and in some forms of rheumatism.

70. Take Extract of Conium	grains, three.
„ Extract of Indian Hemp	grain, one quarter.
„ Camphor	grain, one.

Make a pill. Dose—one three times a day. For asthma and spasmodic bronchitis.

Diuretics.

Diuretics are medicines which, acting on the kidneys and urinary passages, increase the quantity of urine. This class of remedies is particularly useful in various kinds of dropsy; also in fevers, rheumatism, gout, and dyspepsia attended with high-coloured, scanty urine. The principal medicines of this class are nitrate of potash, spirits of nitric ether, colchicum.

71. Take of Nitrate of Potash	drachm, one
„ Spirits of Nitric Ether	drachms, three.
„ Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. For fever and rheumatism.

72. Take of Nitrate of Potash	scruples, two.
„ Spirits of Nitric Ether	drachms, two.
„ Wine of Colchicum	drachms, two.
„ Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls three times a day. For rheumatism.

73. Take of Nitrate of Potash	grains, ten.
„ Bicarbonate of Potash	scruple, one.
„ Sugar, White	drachms, two.

Mix well into a powder. To be taken three times daily in barley-water.

74. Take of Nitrate of Potash	scruples, two.
„ Spirits of Nitric Ether	drachms, two.
„ Tincture of Cantharides	drachms, two.
„ Water, distilled	ounces, eight.

Make a mixture. Dose—two table-spoonfuls every three hours. In cholera, when no urine is secreted.

Opiates.

Opiates are medicines which relieve pain and induce sleep. Of these the principal are opium, morphia, chloral. In large doses they are all poisons, and must, therefore, be administered with caution.

75. Take of Chloral	grains, twenty.
„ Water, distilled	ounce, one and a half.

Make a draught. Chloral is used in many cases instead of opium. Chloral acts much less strongly on some persons than on others. If twenty grains are not sufficient to produce sleep, the quantity may be *cautiously* increased by five grains at one time, until the dose reaches forty grains. A smaller dose of chloral, as five or ten grains, acts as a calmative to the nervous system. It may be taken in sugar and water.

76. Take of Hydrochlorate of Morphia	grain, one.
„ Rectified Spirits of Wine	drops, ten.
„ Water, distilled	ounce, one.

Make a draught. To be taken when a strong opiate is required, as in obstruction of the bowels, and in tetanus.

Emetics.

Emetics are medicines which cause the stomach to contract on its contents, and to expel them through the gullet and mouth. The emetics in most common use are ipecacuanha, tartar emetic, and the sulphate of zinc. It is desirable to promote the action of emetics by copious draughts of warm water, which, filling the stomach, also diminish the disagreeable sensation accompanying vomiting when the stomach is empty. If the vomiting, after taking an emetic, is not freely performed, it may often be induced by tickling the throat with a feather. Mustard and common salt are often used as emetics instead of the drugs mentioned above; and on an emergency, or when other emetics are not at hand, mustard or salt may always be employed. Three table-spoonfuls of common salt dissolved in a quart of warm water forms a good emetic, but is not so rapid in its action as the mustard emetic, or Recipe No. 77, given below. Emetics are prescribed in this work chiefly for cases of poisoning and in croup, but they are sometimes useful in the beginning of febrile affections. *Tartar emetic*, when used as an emetic, exerts a very depressing influence on the system, lessening the power of the heart, reducing the frequency of the pulse, and causing faintness. It is not, therefore, well adapted as an emetic for very young, for very old, or for weakly persons, and has not been prescribed in this work.

77. Take of Mustard Flour	table-spoonful, one.
„ Common Salt	tea-spoonful, one.
„ Warm Water	ounces, ten to twelve.

Mix, and let the patient drink it all. This emetic should act quickly within five or eight minutes.

Local Applications.

Local applications are many and various, and may consist of hot applications, as poultices; of cold applications, as lotions; of soothing applications, of stimulating agents, of astringents, of blisters, of injections, of applications to fracture or other injuries, and of various kinds of baths, &c.

HOT APPLICATIONS.

78. *Bran Poultice.*—Make a linen or flannel bag of the size requisite to cover the part affected, and fill it loosely with bran. Pour boiling water on this till the mass is thoroughly moistened. Put it into a coarse towel and absorb excess of moisture. Then place it on the part, and cover with a dry towel.

79. *Bread Poultice.*—Put half a pint of scalding hot water into a

basin. Add to this as much of the crumb of bread as the water will cover. Let it steep for five minutes. Then drain off the water and spread the moistened bread on a piece of linen, and apply it to the part. In India, *atta* or flour must often be substituted for bread, the latter not being always available.

80. *Linseed Meal Poultice* is made in a similar manner by scalding finely powdered linseed meal.

The principal use of poultices of any kind is to maintain the parts affected warm and moist, and they are thus chiefly useful to hasten the process of suppuration, or 'gathering,' and to relieve the pain of boils or abscesses. When applying a poultice, of any description, it is well to cover the surface with a little lard, or butter, or oil, which will prevent the material of the poultice sticking to the skin when removed. Poultices must be changed more or less frequently, according to the special requirements of each case. They should never be allowed to remain on the part affected after they have cooled, as they then become clammy, unpleasant, and even injurious.

81. *Fomentations.*—Another method of applying moist heat is by fomentation. This is best managed by having some pieces of flannel of the required size, and containing four or five folds, soaked in water so hot as to be grateful to the patient. The hand is not a fair guide to the amount of heat necessary, neither is a thermometer, as some persons bear without flinching the application of heat to the skin which would be positively painful to others. Beneath the part to be fomented should be placed a waterproof sheet, or oil cloth. Then the flannel should be wrung nearly dry, applied to the part, and covered with a good, thick, warm towel. Another fold of flannel should be in the water in readiness, and the flannels should be changed every few minutes, or before they feel cool to the patient. The change should be effected quickly, so that the patient may not take cold, and care should be taken to dry the parts thoroughly after the fomentation.

Sometimes, instead of either poultices or fomentations, it will be better and more convenient to use the substance known as spongio-piline, which is composed of a kind of felt with an impervious covering.

82. *Dry Fomentations.*—It is sometimes advisable to apply dry heat instead of moist heat. This may be effected by the application of flannel bags filled with camomile flowers, hops, bran, or even sand. The bag thus filled should be heated by exposure to the fire and then applied to the part, another being substituted when it becomes cold. A hot brick, or a bottle filled with hot water enveloped in flannel, may also often be used with advantage, particularly for the feet. Or an india-

rubber bag made for the purpose may be used. The bag should not be filled too full with water, and if not furnished with a spongio-piline side, should be wrapped in flannel before being applied to the part.

There is one great advantage in the application of either dry or moist heat as above, viz.: That it will scarcely ever do harm, while cold applications are, in some maladies, unadvisable.

Cooling Applications.

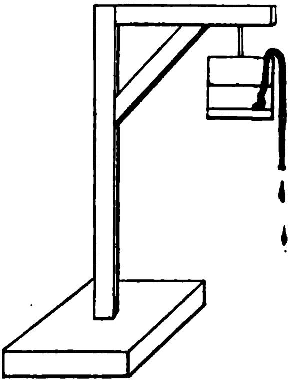
It has already been stated that hot applications are most useful to hasten the process of gathering, or suppuration, but in the commencement of any local inflammation it will often be proper to use cooling applications, and thus endeavour to check the progress towards the formation of matter. As it may be sometimes difficult to decide whether the use of hot or cold applications will be best in any particular case, the sensations of the patient should be consulted, which are generally a safe guide. Thus if shivering and discomfort follow the application of ice, or cold applications, the cold should be discontinued. Should pain in and around the part come on—as, for instance, after a sprain—increased by each fresh application of cold, the dressing should be changed for *warm* applications, *gradually* made hotter in order to avoid a too sudden impression on the affected part.

The application of cold may be effected by the following means:—

1. *Evaporating Lotions.* (*Vide* Recipes 83, 84.)—A piece of linen, *not doubled*, should be dipped in the liquid, and laid on the part affected, but no other covering should be permitted over this. To secure evaporation and the resulting cold, exposure to the air is required. The piece of linen should be frequently removed and freshly wetted, or the lotion may be dropped upon it from a sponge. In the absence of a lotion, water, with a little ice in it, may be used in this manner. Or a lotion may be made by mixing two ounces of spirits of wine and two ounces of vinegar in a pint of cold water.

2. *Ice in a Bladder, or India-rubber Bag.*—Ice roughly pounded, or shaved with a cucumber grater, placed in a bag, will produce an intense degree of cold. Or if ice is only available in small quantities, it may be mixed with an equal bulk of salt. In the use of these applications the sensations of the patient are the best guide. If shivering and discomfort follow such applications they should be discontinued, and *Irrigation* (see p. 494), or evaporating lotions, or even warm applications, should be used; warmth being substituted *gradually* for cold.

3. *Irrigation.*—This is effected by exposing the injured part, beneath which india-rubber cloth, or oil-cloth, should be placed. Then a vessel containing cold water should be suspended on the bed-post, or from a hook in the wall, or from a stand as here figured, so that the receptacle may hang directly over the part to be 'irrigated.' Continuous dripping of the water may be accomplished, by hanging over the edge of the vessel a thin strip of lint previously well soaked. Capillary attraction will cause the fluid to drop more or less rapidly, according to the size of the strip of lint, from the latter on the parts beneath. The exact point on which the dripping occurs should be varied, from time to time, by slightly altering the position of the hanging vessel.


IRRIGATION STAND.

83. Take of	Nitrate of Potash . . .	ounce, half.
„	Hydrochlorate of Ammonia	ounce, half.
„	Common Salt	ounce, half.
„	Water	ounces, twelve.

Make a lotion. Either this or Recipe 84 may be used when cooling lotions are required. The materials as above may be procured in Indian bazaars, where nitrate of potash is known as *Shora*, and hydrochlorate of ammonia as *Nissadul*, or *Naushadur*. If greater cold is required, instead of using this as a lotion, equal parts of the ingredients may be mixed roughly together with a very small quantity of water, then placed in an india-rubber bag, or bladder, and applied to the part. This forms a good substitute when ice cannot be procured.

84. Take of	Acetate of Lead	drachm, one.
„	Rectified Spirits of Wine .	ounce, one.
„	Water, distilled	ounces, twelve.

Make a lotion. To be applied as mentioned above, under 'Evaporating Lotions,' p. 493.

SOOTHING APPLICATIONS.

85. *Water Dressing.*—This consists of a double fold of lint or linen soaked in water and applied to the part. Over this a covering of im-

permeable material, as oil-silk, gutta-percha tissue, or bladder, should be laid. Either warm or cold water may be used as most agreeable to the patient, and the dressing should be changed twice or three times a day. A useful application for irritable or healing ulcers. Water may be medicated by the addition of various substances, and used in a similar manner.

86. *Simple Ointment.*—Mutton fat, two parts ; olive oil, one part; yellow beeswax, half a part. Melt the whole in a saucepan, and stir while cooling. This forms a healing simple ointment, which may be medicated in various ways by the after addition of other agents (*vide* Recipes 95, 96).

87. *Carron Oil.*—Equal parts of linseed oil and lime water should be well shaken together. The lime water is made by placing half a pound of quick lime in a gallon of water. As water will only absorb a certain quantity of lime, exact proportions are not needed. Carron Oil is a useful application to burns and scalds.

88. *Black Wash.*—

Take of Calomel	grains, thirty.
„ Lime Water	ounces, ten.

Mix well by shaking the bottle and make a lotion. 'Black Wash,' so called from the dark colour the mixture assumes, is a very useful application for venereal sores. To make Lime Water, *vide* Recipe 87.

89. Take of Tincture of Opium . . .	drachm, one.
„ Tincture of Aconite . . .	drachm, one.
„ Chloroform.	drachm, one.
„ Soap Liniment	ounce, one and a half.

Mix for a Liniment, and mark POISON. This Liniment may be rubbed on the skin with a piece of sponge for neuralgic pains.

90. Take of Tincture of Opium . . .	drachm, one.
„ Tincture of Aconite . . .	drachm, one.
„ Chloroform.	drachm, one.

Mix for a Liniment, and mark POISON. This Liniment may be rubbed on the skin with a piece of sponge or lint for neuralgic pains. It is much stronger than Recipe 89. It should not be used when any wound or injury of the skin exists, or for the mouth ; nor in any case for young children.

91. Fill a small phial two-thirds full with powdered camphor, and then fill up with rectified spirits of wine or sulphuric ether. With this solution the part affected by neuralgia should be lightly rubbed by means of a sponge or lint fixed to a piece of stick. A minute suffices to produce almost entire loss of sensation in the part, but this effect does not last long.

STIMULATING APPLICATIONS—OINTMENTS.

92. Take of Flour of Sulphur	ounce, one.
„ Nitrate of Potash	drachm, half.
„ Soap, or Glycerine	drachm, one.
„ Mutton Fat.	ounces, four.

Mix thoroughly in a mortar, after melting the fat over a fire. An effectual application for itch.

93. Take of Tincture of Opium	drachms, two.
„ Carbolic Acid	grains, twenty.
„ Mutton Fat	ounce, one.
„ Olive Oil	ounce, one.

Melt in a pipkin over the fire, and stir while cooling. A good stimulating ointment for ulcers.

94. Take of Red Iodide of Mercury	grains, sixteen.
„ Mutton Fat	ounce, half.
„ Olive Oil	ounces, half.

Mix the fat and oil by melting over a fire, and then rub the iodide of mercury thoroughly into the fat and oil in a mortar. A useful ointment to rub into the skin in cases of enlarged spleen; of 'Derbyshire neck,' or goître; and for enlarged glands generally.

95. Take of Powdered Gall Nuts	grains, eighty.
„ Extract of Opium	grains, thirty.
„ Simple Ointment (Recipe 86)	ounce, one.

Mix thoroughly in a mortar. A good application for piles or hæmorrhoids.

96. Take of Acetate of Lead	grains, thirty.
„ Simple Ointment (Recipe 86)	ounce, one.

Mix thoroughly in a mortar. A good ointment for scorbutic ulcers.

LOTIONS.

97. Take of Powdered Alum	grains, twenty.
„ Water, distilled	ounces, eight.

Mix well and make a lotion. Useful for eye and ear affections, and for weak, indolent ulcers.

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98. Take of Sulphate of Zinc	grains, eight.
„ Water, distilled	ounces, eight.

Mix well and make a lotion. For eye and ear affections.

99. Take of Bicarbonate of Soda	drachm, one.
„ Water, distilled	ounces, eight.

Mix well and make a lotion. Useful for eczema, and certain other skin diseases.

STIMULATING AND ASTRINGENT GARGLES.

100. Take of Alum	drachm, one.
„ Water, distilled	ounces, eight.

Mix and make a gargle. For sore throat, ulcerated mouth, and scurvy. Also as an injection.

101. Take of Tincture of Ginger (*strong*)	drachm, one.
„ Water, distilled	ounces, eight.

Mix well and make a gargle. For relaxed throat.

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102. Take of Gallic Acid	scruple, one.
„ Brandy	drachms, four.
„ Water, distilled	ounces, six.

Mix and make a gargle. For salivation, ulcerated mouth, and scurvy.

103. Take of Sulphate of Zinc	grains, thirty.
„ Water, distilled	ounces, eight.

Mix well and make a gargle. This and the three preceding gargles are all useful in different forms of salivation, ulcerated mouth, and relaxed and sore throats, sometimes one, sometimes another, being most suitable.

INJECTIONS OR ENEMAS.

104. Take of Starch or Soap	drachms, two.
„ Water, warm	ounces, ten.

Mix well and make an injection.

For the method of administering an injection to children, and for the quantity to be injected, *vide* article CONSTIPATION OF CHILDREN, p. 97.

If an injection syringe is not available, a substitute may be improvised by tying a piece of tobacco pipe, or other tube, into a bladder containing the injection. The contents must then be squeezed out of the bladder through the tube.

105. Take of	Assafœtida	drachm, one.
„	Soap	drachm, one.
„	Castor Oil	ounce, one.
„	Water, warm	ounces, eight.

Mix well. A stimulating injection.

106. Take of	Castor Oil	ounce, half.
„	Spirits of Turpentine	ounce, half.
„	Croton Oil	drops, four.
„	Soap	grains, thirty.
„	Water, warm	ounces, eight.

Mix well. A purgative injection. For apoplexy.

107. Take of	Sulphate of Zinc	grains, twenty.
„	Tincture of Opium	minims, thirty.
„	Water, warm	ounces, eight.

Mix well. An astringent injection. Useful for 'whites,' and diseases of the womb.

IRRITATING, RUBEFACIENT, OR BLISTERING APPLICATIONS.

108.—*Turpentine Stupe.*—Saturate a piece of lint or a piece of flannel with spirits of turpentine. Place this on the painful part and cover with oiled silk or a dry cloth. Retain it on the part for an hour, or until it becomes too painful. The turpentine stupe produces redness of the skin, but does not blister.

109. *Mustard Poultice.*—Mix flour of mustard with lukewarm water in sufficient quantity to spread thickly over a piece of linen cloth large enough to cover the part for which it is required. Then apply and maintain it on the part for twenty minutes or half an hour. For children a piece of muslin should be placed between the mustard and the skin to prevent too great action of the former on the tender surface of the child, which, if too violent, might be followed by blisters and wounds.

A good substitute for the mustard poultice is a new preparation sold by chemists, under the name of 'Rigollot's Mustard Paper,' the advantages of which may be stated as follows:—Instead of the many disagreeable and expensive operations required in the application of a sinapism as prepared by the ordinary method, one single leaf, immersed in water for half a minute and immediately after applied to the skin, will have the same effect as produced by a mustard poultice, but without the annoyance of any linen being soiled, and saving the patient and the people near him from the inconvenience of the disagreeable smell and acrid vapour arising from an ordinary poultice. When used for children, the mustard paper, particularly if fresh, should be guarded by muslin.

110. *Blisters.*—The 'Spanish Fly,' or Cantharides plaster, is spread thinly on a piece of sticking plaster, leaving a margin of the latter, which when the blister is applied to the skin adheres and maintains the whole in position. The blister begins to smart and rise in about two hours, and may be taken off in six or eight hours. But the time which is necessary to produce a blister depends much on the greater or less natural sensibility of the person's skin. When the blister is taken off all the raised blebs found beneath should be snipped at their most bulging or dependent parts with a sharp pair of scissors, and the water allowed to drain out, but none of the raised skin should be removed. Then the part should be dressed with simple dressing (Recipe 86) spread on linen or lint. In six or eight hours this dressing should be taken off, when probably other blebs or blisters will have formed. These must be snipped in similar manner and the water drained out. Then the place should be dressed twice daily with simple ointment. If, as sometimes happens, boils form after blisters near the blistered part, they should be fomented and poulticed, as though resulting from any other cause.

There is also a blistering tissue made, but it does not keep well in India.

Any kind of blister must be applied to children with caution, as sores are likely to result. When necessary to apply blisters to children, muslin should be placed between the blister and the skin, so that the effect of the former may be rendered less violent, and the blister should not be suffered to remain on more than three hours.

APPLICATIONS FOR INJURIES.

111. *Starch Bandage.*—Make a very thick solution of starch, soak a bandage in it, and apply to the part, winding fold after fold. Then let it dry or harden, when it forms a firm support or shell. It should be applied with moderate firmness, but not too tightly. It is very useful after the splints are removed from a fractured limb, as a support to the part.

112.—*Leather Plaster.*—This is adhesive or resin plaster spread on leather. It is chiefly useful in the treatment of fractures to form a support after the splints are taken away.

Baths.

Warm or hot baths have been frequently recommended throughout this work, and a few remarks on their action and influence on the human system appear desirable. Properly and judiciously used, warm baths are remedies of great power and utility; but improperly used, they may do much injury. The effect of a hot bath is to relax the muscles, to diminish the force of the heart's action, thereby lessening the frequency of the pulse, and to produce debility and faintness. It is, therefore, necessary to watch a person placed in a warm bath, and, while in the bath, the reclining position should be assumed, which renders fainting less liable to occur. The time during which a person should remain in a warm bath must be regulated chiefly by the effect produced. Symptoms of faintness require removal, when the person should be dried and put to bed. If faintness be marked, the person should lie down immediately and be dried in that position.

It must be remembered that the skin of infants is more susceptible to external impressions, and will, therefore, suffer from a degree of heat innocuous to an adult. Infants have been frequently scalded to death in too hot baths, or by too hot fomentations. The temperature of warm baths or of fomentations for children should not, therefore, exceed 96°, or, at most, 98° Fahr.

The complaints for which warm baths are most useful in adults are those accompanied by great and spasmodic pain, the passing of gravel, rupture or hernia, stoppage in the bowels, and for rheumatism.

In children warm baths are chiefly required in convulsions, croup, pain in the bowels, restlessness from teething, flatulence.

Another method of applying heat to the surface, when a hot bath is not advisable, is wrapping the patient in a sheet or blanket wrung out of hot water, and covering with other dry blankets, enveloped in which the patient may remain twenty minutes, and must then be thoroughly dried with warm towels and put to bed.

A Medicated Bath is one in which some substance intended to act as a medicine has been mixed with the water. This is an important method of bringing remedies to bear on the system, through the pores of the skin. The substances thus used as medicinal agents are common salt, acids, soda, sulphur. *Vide* Recipe below, 113.

113. *Nitro-Muriatic Acid Bath.—*

Take of Muriatic Acid . . .	three parts.
„ Nitric Acid	two parts.

Mix the two acids carefully and slowly; then add, also slowly, five parts of distilled water. Wait till the heat produced by the mixture of the ingredients subsides, and bottle for use. Sixty ounces of this dilute acid must be added to the water of each bath, which should be about 98° Fahr. in temperature. The patient should remain in the bath about fifteen minutes, the temperature being maintained at 98° by the gradual addition of hot water. On coming out of the bath, the body should be rubbed with coarse towels. The Nitro-Muriatic Acid Bath is chiefly used in chronic liver and spleen affections.—*Caution.* When using strong acids as above, care must be taken, as they will burn anything they come in contact with. Muriatic is also called hydrochloric acid.

Dry Cupping.

114. *Dry Cupping.*—This consists in the application of the cupping-glasses, without following the process up by the use of the scarificator or lancets. The cupping-glasses should be exhausted in the usual manner by holding the lighted spirit-lamp within the glass for a few seconds, and then quickly placing the glass on the skin. The air being rarefied inside the glass by the heat of the torch, the atmospheric pressure causes the glass to adhere to the surface, and the skin rises red and prominent within the glass. Several glasses may be applied and re-applied in this manner, which causes a rise of the blood from the internal parts to the surface. If cupping-glasses are not at hand, dry cupping may be accomplished by common tumblers, which should be first exhausted of air by the introduction inside of a lighted piece of brown paper, or by a little cotton wool tied on a stick and saturated with spirits of wine or brandy, and then lighted. Care must be taken that the glass is not sufficiently heated to burn the skin of the patient. When it is desired to take the glass off, the finger-nail should be insinuated between the edge of the glass and the skin, when the glass will become loose, and may be easily detached. After dry cupping no application is required; the parts will recover their natural appearance in a few hours. If it is desired to maintain the irritation caused by the dry cupping, hot fomentations should be used.

115. *Leeches—how to apply them.*—The medicinal leech has three horny teeth in its mouth, and therefore makes a triangular wound. The Indian leech being much smaller than the European variety, does not take so much blood.

Leeches should be kept in a cool place, in a jar of water with mud at the bottom, the mouth of the vessel being covered with muslin. The water should be changed every two or three days.

There is often a good deal of trouble in getting leeches to fix. The part on which they are to be applied should be carefully cleansed and wiped with a cool moist cloth, so as to leave it damp. If they do not bite readily, the part may be moistened with a little sugar and water or milk. If this does not answer, the skin may be slightly scratched with a sharp needle till the blood comes, when the leeches will probably fasten. Sometimes rubbing a refractory leech in a dry towel, or placing it for a moment in warm porter, will cause it to bite.

If it be wished to apply leeches in one circumscribed spot, the best plan is to put them all in a small wineglass, which is to be turned down over the part. If required to be spread over a large surface, they must be put on singly by the hand, often a tedious business; they should then be held lightly by the tail, wrapped in a piece of wet cloth, so that they may not be inconvenienced by the heat of the hand. If the leech does not fix soon, it is better to return it to the water for a time, to let it cool itself, trying another in the meantime. More leeches than the number directed to be applied should be obtained, as often some will not bite. It is always advisable if possible, particularly with children, to apply leeches over some bone, against which pressure may be exerted to stop the bleeding, if necessary.

When the full number has been applied, they should not be disturbed, but should be covered with a light cloth until, having filled, they will fall off in about three-quarters of an hour. Then the leech-bites should be fomented with hot water, if it is wished to encourage the flow of blood, otherwise they should be covered with dry lint.

Leech-bites will generally stop bleeding without further interference; if not, the measures recommended under the head 'Bleeding from Leech-bites,' page 364, should be adopted.

A little salt should be sprinkled on the leeches after they drop off, which causes them to disgorge the blood, otherwise they die, or at least are not fit for use again for many days. They should then be returned to clear water, which for some time should be frequently changed.

Disinfectants.

116.—*Condy's Fluid.*—This may be placed in saucers, or cloths soaked in it may be hung up, or it may be sprinkled over apartments where there are contagious maladies. Furniture also may be washed in 'Condy's Fluid,' mixed with water in the proportion of one part of the former to fifty of the latter.

Six or eight drops of Condy's Fluid added to a gallon of water will purify it, and render it fit for household purposes. This plan may be adopted when boiling and filtering water, as recommended under the head 'Water,' Chap. IV., p. 530, is impracticable.

117. *Carbolic Acid.*—This may be used, when diluted, as a disinfectant, in the same manner as Condy's Fluid. The proportion is one part of acid to one hundred parts of water. Carbolic Acid cannot be used pure, as it burns everything it comes in contact with.

The following rules on disinfection have been recently circulated for general information by the Sanitation Department of Government:—

Rooms can be disinfected by burning brimstone in them in the proportion of four ounces to every 100 cubic feet. Doors, chimneys, and windows must be shut whilst this is being done, and any clothes or carpets belonging to such rooms may, previously to further disinfection (for which see below), be with advantage spread out on ropes in such rooms during the process. No disinfection of this kind is thorough if a man can live in the room whilst this is going on. Some volatile agents may perhaps protect against certain infectious diseases without being at the same time injurious to men's lungs and lives; but small-pox and cholera have never been shown to be controllable by such means within rooms occupied by human beings. Hence may be seen the inexpediency of recommending for our purposes, at the present time, certain substances commonly used in sick-rooms, which may be pleasant as deodorisers, but are known to fail as disinfectants. For living-rooms, whilst occupied, it is all-important to insist upon good ventilation; and for such good ventilation it is requisite that all the air of such rooms should be changed. This is best done by seeing that fresh air is admitted as nearly as possible on a level with the ceiling. In every sick-room one or other of the solutions mentioned below should be placed in any utensil which is liable to be used by any person suffering from any infectious disorder. Thus the evacuations can be disinfected before they can become mischievous.

Water-closets, privies, cesspools, and drains can be disinfected by copperas (sulphate of iron). Carbolic acid can be used with advantage in company with, or after, but not without copperas. A certain quantity of disinfectant will disinfect only a certain quantity of foul matter, and disinfection is imperfect till all 'hot' smell or alkaline reaction is abolished. For the disinfection of a cubic foot of filth, half a pound of copperas dissolved in a couple of quarts of soft water is sufficient. The daily addition by each individual using a privy or water-closet of two-thirds of an ounce of solid copperas to such privy, or one-third of a pint of the above solution to such water-closet, will keep it wholesome if any accumulation of filth which it may contain or communicate with has been previously disinfected according to the directions given above. Carbolic acid, which need not be chemically pure, can be used after the addition of copperas till the place smells strongly of it. It should be used in the fluid state, its combinations with lime and magnesia having an alkaline reaction, and being, therefore, unsuitable for the present purpose. It may be diluted by being shaken up with twenty times its volume of water, and if poured from a watering-pot with rose-nozzle over the sides of a recently emptied privy or cesspool will do great good. Sawdust, or sand, strongly impregnated with carbolic acid, may be used for this purpose. Chloralum (solution of chloride of aluminum of sp. gr. 1160) will acidify ordinary sewage and destroy its living organisms when added in the proportion of one part to forty. It may be expected, therefore, to act as a disinfectant. This cannot be said of chloride of lime. All water-closets and privies should, when epidemics of cholera or typhoid may be expected, be disinfected whether they be offensive or not. It is well at such periods to avoid using any such conveniences which have not been disinfected, especially if, as at hotels and railway stations, they may have been used by persons from infected localities. All the conveniences mentioned need ventilating as much as living-rooms do.

Body and bed clothes should be disinfected either by immersion in Burnett's Solution (of chloride of zinc), diluted in the proportion of a pint to a gallon of water, and kept in glazed earthenware vessel, or by prolonged boiling in plain water. Or if available, either Condy's fluid or carbolic acid may be added to the water, in the proportion of one part of the disinfectant to fifty parts of water.

Woollen clothes may also be disinfected in an oven by a temperature of 250° Fahr.

It is well to *burn* anything infectious which we can afford to burn.

Recently *nitrate of lead* has been strongly recommended as a most effective deodoriser. A pound of the material, costing about one shilling in England, furnishes sufficient to make nearly 400 gallons of fluid, so that it is also remarkably cheap. To prepare it for use, take half a drachm of nitrate of lead, and dissolve in a pint or more of boiling water. Then dissolve two drachms of common salt in a bucket of water. Pour the two solutions together, and allow the sediment to settle. A cloth, dipped in this liquid, and hung up, will sweeten a foul atmosphere, or it may be used as mentioned with reference to other disinfectants.

CHAPTER IV.

THE PRESERVATION OF HEALTH.

This section is especially intended as generally suggestive of the course to be followed, to secure the preservation of health in those varying circumstances attaching to residence and exposure in a tropical climate. Hence as a matter almost of necessity something of the following will be trite and familiar to all who have paid the least attention to sanitary demands. But to render the treatment of the subject complete, and such as will prove useful to all, the reader must be assumed ignorant of the topics to which the following pages refer. Neither is the necessity of extraordinary attention to what may appear—especially to one young, robust, and fresh from Europe—very trivial subjects, evident without some knowledge of the differences of climate, under which the European, translated to the tropics, exists.

He is more or less rapidly—in these days much more suddenly than when so many doubled the Cape—transported from a climate where the mean temperature is low, to one in which the mean temperature is some twenty degrees higher (82° Fahr.), where the sun's rays are more vertical, and where the rainfall is more violent, and instead of being spread over the greater portion of the year is practically confined to certain seasons. But the vast Empire of India, situated under a tropical or semi-tropical sun, extending from the Equator to the eternal snows of the Himalayeh mountains, a great part being uncultivated or irreclaimable land, containing numerous mountain ranges, bounded by the ocean on two-thirds of its circumference, must of necessity present an almost endless variety of climate. And although it cannot be doubted that the salubrity of the air depends in different places in a great measure on the surface of the earth at those places, still more depends, particularly in the tropics, on physical and meteorological influences. Before, therefore, the salubrity of any place can be authoritatively decided upon, all those very numerous accessories must be taken into consideration, the results of which medical science expresses in two words--good or bad climate. We cannot confine the definition of climate, as the Natives of India do, to the condition of the local water and air, but must take an exceedingly more comprehensive view, and consider the combined influences of latitude; relative position of sea and land; elevation above the level of the ocean; prevalence or absence of mountain ranges; geological nature of the soil; amount of dry and wet season during the year; average fall of rain and direction of winds; humidity; the position of sterile sand tracts; of extensive lakes; of marshes; of rivers and their embouchures; these determining by their varied influences the natural physical climate of a district. But medical climate is not completely appreciated without the addition of local aspect, cultivation, presence or absence of trees, position and condition of buildings, drainage, and, in short, all the labours of man as circumstances to be taken into consideration, when attempting the delineation of climate as it affects health and disease.

The three great divisions of the year into hot, cold, and rainy seasons are found to be more or less correct throughout the whole Indian peninsula, although in Scinde, some parts of the Punjaub, and in the North-Western parts of Hindustan generally, the rains are less violent, the cold more intense, and the heat quite as fervent; while in some parts of the Madras Presidency rain is an ordinary occurrence nearly all the year round. But in Southern and Peninsular

India generally, where these changes are governed by the monsoons, the alternations of dry and wet are pretty regular, although varying in different localities as to period of the year. Thus on the Malabar coast the south-west monsoon commences about the middle of April, and continues till August or September, when it gradually loses its violence. Towards the end of October the north-east monsoon begins on this coast, blowing like the opposite winds, first on the southern part, and not being felt to the north for about a fortnight after. On the Coromandel coast the south-west monsoon commences in April, but does not blow violently till June, declining in September, the north-east commencing about the middle of October.

On both coasts the setting in of the monsoon is generally accompanied with violent storms, most so on the Malabar coast, which is deluged with rain during the south-west winds, in consequence of the clouds brought by these blasts being intercepted by the lofty ridges of the western ghauts or mountains, thus affording a striking example of the manner in which natural obstacles modify the climates of whole districts. Where the clouds first strike the hill-tops, several hundred inches of rain may fall, rapidly decreasing as the inland country is approached. Owing also to similar circumstances it is the dry season on the Coromandel coast. But at the northern termination of the western ghauts, the monsoon as far as it blows (about lat. 24° 44′) carries the rain without intermission over the whole country; again forcibly illustrating the difference of climate arising from natural obstructions. The rains of the eastern coast are not so violent as on the Malabar shores, and this again seems to be accounted for by the circumstance that the eastern ghauts are less elevated, also farther from the sea than the western, thus intercepting and collecting a smaller proportion of clouds and vapour. From such causes the Carnatic has only about two months' rain, while in the Circars the wet season lasts much longer. But the province of Coimbetoor partakes of the wet season of the Malabar coast, this again being occasioned by a lowness or break in the ghauts in that locality.

It has already been stated that the monsoons do not extend beyond lat. 24° 44′, and therefore the northern parts of Hindustan have the driest climate. During the months of July and August, and the early part of September—the rainy season in the southern part of India—the atmosphere in the north is generally clouded; but little rain, comparatively speaking, falls. Indeed, in Scinde there is very little rain during the whole year, which want, with the proximity of extensive semi-desert tracts, renders the temperature of this province excessively high, the thermometer in June and July varying from 90° to 100°. The cold season, on the other hand, is marked by very low temperature, in the northern parts falling below 30°, and water freezing in tents. This great variation of heat and cold is experienced throughout the adjoining province of Rajpootana, in the Punjaub, in Oude, and even so low southwards as Agra and Allahabad. The climate of the upper part of the North-West Provinces is much like that of the Punjaub; south-west it merges into the moister heat of Bengal. Similarly the climate of Bengal merges into that of Madras, south of the 20th degree of latitude; where the distinction between the hot and cold seasons is comparatively lost, and where rain is a more frequent occurrence.

North of all these districts are the provinces of Cashmere, Ghurwall, Cabul, Nepaul, above which tower the lofty heights of the Himalayehs, presenting numerous localities for sanitary stations, for refuges for European children, and perhaps for colonisation, where the natives of colder climates may enjoy 'the delights of a lengthened spring, the bracing cold of a real winter, and the genial heat of a healthy summer.'

The soil of India, as might be expected in so great a tract of country, presents many varieties. In the plains through which the Ganges runs, it is a rich black alluvial mould In other parts of Bengal there is a considerable extent of clay substratum. As the north-west and the Punjaub are traversed, the country becomes more and more sandy, and returning southwards through Bhawulpoor, Bickaneer, Marwar, into Guzerat, the whole surface is one vast sand tract. On the table land of the Deccan the soil is of various qualities, most generally loam or rock. Near the coasts it becomes sandy. In the province of Malabar, at the foot of the low hills or spurs of the ghauts, it is a reddish clay. On the Coromandel coast the sandy soil continues to the foot of the Eastern Ghauts, which are of granite, and present a frightful barrenness. Rocks of trap formation, sandstone, and quartz, are found in Malwah and Central India. The substratum of the soil in many parts of Hindustan proper is calcareous, in others clay or rock.

Such is a cursory view of the Indian climate, but it cannot be accepted as anything more than a most imperfect generalisation. As a consequence of neighbouring mountains, sea coasts, and sand tracts, most districts are found to possess a different climate, which is further influenced by soil, cultivation, water, jungle, and position. Thus local climates in India are more varied than at first would be supposed; and are consequently more or less inimical to the constitution of the European who sojourns in the different localities.

But it cannot be too much impressed on all Europeans in India that the diseases incidental to the climate may be often escaped, or at least modified in severity, by attention to ordinary general sanitary principles and to personal hygiene, especially by those newly arrived in the country. The Anglo-Saxon race is, perhaps, above all others naturally endowed with a resisting power against the evil effects of adverse climatic influences; and this power may be materially assisted by care, and by ordinary avoidance of evident causes of disease.

In a hot climate the European must prepare to defend himself against three principal climatic enemies, and these are—1. HEAT; 2. MALARIA; and, paradoxical as it may appear, 3. COLD. Keeping these three causes of disease prominently in mind, he must next look to the quality of the *water* he drinks; to the securing of a proper amount of *sleep*; to the quality and quantity of the *food* he eats; to the amount of fermented *liquor* he consumes; to *exercise*; to *clothing*; to the *bath*; to the *house* he lives in, and to the *conservancy* of his premises and neighbourhood. Lastly, he should be on the guard against excess of *mental emotion*, especially fits of passion, which have been known to precede, and perhaps induce, paroxysms of fever. These subjects are now considered separately.

HEAT.—Heat will induce disease both directly and indirectly. Directly, as when a fever or a sun-stroke is the result of exposure to the rays of the sun, or as when *heat syncope* or fainting, *heat asphyxia* or suffocation (*vide* article on SUNSTROKE) are excited by the sultry atmosphere of the Indian dog-days, or by the hot and vitiated air of crowded barracks and hospitals. Hence the necessity of avoiding as much as possible exposure to the direct rays of the sun, especially during the summer season, when, if practicable, the European should remain under the shelter of a roof between the hours of 9 A.M. and 4 P.M. But such avoidance of exposure is not always in the power of every person. Work must be done, and the sun must be braved. The surveyor or engineer must sometimes be abroad at such seasons looking after his works; the soldier on active service must attend to the calls of duty, whether by day or by night; the doctor must obey the demands of his patients; the traveller pressed for time must proceed, whether the vertical sun shines fiercely, or the frost of Upper India appears colder than that of Europe. On such occasions protection of the head, back, and bowels is the principal means by which exposure may be rendered less inimical. Therefore the adoption of a suitable head-dress is a *sine quâ non.* But a material suitable for a head-dress which will admit of compression without injury, and yet resume its shape, which possesses the characteristics of strength, durability, and lightness, is still a desideratum. The common felt helmet, as supplied by Ellwood, is perhaps the head-dress best adapted to guard against a tropical sun. But unfortunately the Ellwood helmet is expensive, and very liable to injury. The latter observation also applies to such material as cork, in a lesser degree to wicker-work, and more decidedly to pith. Thin leather is, perhaps, the only material, certainly the material more easily obtainable, most fulfilling the indications required. A low-crowned helmet, constructed of two layers of thin leather, is perhaps the most efficient head-dress. The summit of the crown should be sufficiently elevated not to touch the top of the head. Where the helmet fits the head laterally, the separation of the two layers should be about the same in extent as in an Ellwood's hat. Greater separation is not recommended for the following reasons:—If the space is wider, as in many pith or wicker-work hats, some of which are separated an inch or more from the wearer's head, the hot wind is allowed to pass in excess to the latter. As a consequence, the hair and scalp are maintained dry or drying by the immediate evaporation of the perspiration secreted, the head grows hot, and the person is thus predisposed to *coup de soleil.* On the other hand, if the head-dress is so made as to admit of but very moderate ventilation, the head is maintained moist. Ventilating hats with the outer layer widely separated from the head by pieces of cork or otherwise, are mistakes for wear during a long exposure in all districts where the hot winds blow. Near the vertex let the separation from the head be as wide as possible, but gradually narrowing to the sides of the head. The ideas prevalent, that the hair is injured by maintaining it wet with perspiration, and that baldness is thereby produced, are erroneous. A little extra cleanliness and care, with brush and comb, is only necessitated. Sunstrokes will seldom occur while the head is *wet*, but when *dry* there is every danger.

The leather helmet proposed will, of course, require a few holes in the crown. The front should be cut into a small peak, the back into a larger one, care being taken that the rim is sufficiently broad laterally well to shade the temples. The advantages of a leather helmet are its cheapness, lightness, comparative indestructibility, and absence of elaborate workmanship, the manufacture being within the capabilities of a very indifferent *moochee*. Moreover, leather in itself, being a good protection from the sun's rays, is also impervious to rain. If thought desirable, a metal rim or other ornament might easily be applied, and the leather could be stained to any colour. A leather helmet as above sketched should not weigh more than three-quarters of a pound, and therefore would not prove uncomfortable or oppressive if worn in the early morning or evening without the *puggree* or turban, required round the hat in the day.

The *puggree* or turban should be composed of some thin cotton texture. It should be at least seven yards long, and, when doubled twice, eight inches broad. This may be wrapped according to fancy round the helmet, taking care that the greatest number of layers are over that portion where the helmet comes in contact with the head. But this is not the only use of the turban. When travelling, it should be worn as a 'cummerbund,' or protection to the bowels and loins at night. Thus the turban would defend two vitally important parts at that period of the twenty-four hours when each most requires defence: *viz.* the bowels by night, and the brain by day. Also, when halting by day in the shade, with (as often is the case) a hot wind blowing, and converting the surface of the body into a kind of tatty, it is advisable to wind the turban round the bowels. This simple precaution will prevent chill, which otherwise may be the cause of bowel complaint. And for this use the turban is recommended to be sufficiently broad to reach pretty nearly over the whole bowels, and to be long enough to pass round the body several times.

But the protection of the head may be still further secured by either wetting the 'puggree' with water before going into the sun, or by placing inside the hat a layer of green leaves, of which the best is plantain leaf. And the protection of the bowels may be rendered more certain by the habitual use of a flannel belt worn over the parts. This, with the addition of the turban, at the times and under the circumstances indicated above, will reduce the chances of bowel complaint, at least from cold, to a minimum.

The protection of the spine is scarcely of less importance than that of the head. It is a fact well known to medical men that there is a species of *coup de soleil*, known as *heat asphyxia*, in which the origin of the evil is referable to the spinal cord. That part of the spine just below the neck, from which the nerves of respiration pass to the chest, becomes congested by the heat, the nerves become paralysed, the chest ceases to expand, and the person dies suffocated. Many of the cases recorded as sunstroke are, in fact, a species of heat suffocation. The extreme importance of protecting the back is, therefore, at once obvious. *A priori*, allowing the puggree to fall over the back would appear the most facile method of accomplishing the object. But there are several fatal objections to this mode of procedure. The weight of the puggree thus hanging down becomes after a time irksome to the wearer, who, when the puggree lies close to the coat, cannot move his head with the freedom he would in the absence of such impediment. Again, on wind blowing, the puggree moves its position, and ceases to afford the desired shelter. The floating ends are also liable to entangle in any adjacent object, sometimes flapping round the wearer's face, and perhaps obscuring vision at a critical time. What is required is a permanent and immovable protection for the spine; a protection which may be put on and off with the clothing. And this is to be obtained by placing a pad about seven inches long and three wide from the collar of the coat to about the level of the inferior angle of the blade-bone. This pad should be constructed of cork shavings, a material which, while acting as a non-conductor of heat, is light, and sufficiently soft not to occasion inconvenience even if lain upon. The shavings should be stitched, so that the position of the pad cannot alter. The thickness of the pad should be at least three inches.

But protection of the whole body from heat is also desirable. For short distances nothing is better than the 'chatta,' or umbrella. Yet this can scarcely be used when proceeding on horseback, when actively employed, or when in pursuit of game. But it should be recollected that what keeps cold out will, to a certain extent, also keep heat out. Or stating the case more scientifically, what is a bad conductor of heat *from* the surface of the body, will be a bad conductor of heat *to* the surface of the body. Hence it is not advisable that the clothing of Europeans in India should be so thin as the majority of persons coming to a tropical climate would suppose. Light it should certainly be, but the texture should be such as, while not inconvenient from weight, will yet afford some protection to the surface of the body. For the equestrian even in the hottest weather nothing will be better than cord breeches and flannel shirt, with overcoat of flannel or cotton. When less active exertion is anticipated flannel is also still desirable (*vide* paragraph on CLOTHING, p. 538).

Exposure to *indirect* heat must be guarded against by a sufficient ventilation of dwelling-houses, especially of sleeping apartments. And this should not be done by rule and measure. The number of cubic feet available as breathing space is a fallacious method of gauging the capabilities of a sleeping chamber. Except in the coldest weather of the coldest part of India, and in some positions and localities during the rains and unhealthy season, some doors or windows defended by chicks should always remain open. The sleeping cot need not be placed in a draught, but to one side, so that ventilation may be sufficiently secured without danger of chill. The punkah, thermantidote, and tatty are also (the former more generally) useful in guarding against the effects of heated atmosphere. In many parts of Southern India the punkah is always grateful by day; while the thermantidote and tatty will aid in reducing the temperature of the whole house. But they should be so placed that the wind passing from them does not blow forcibly and directly on the person, as various diseases, especially rheumatism and fever, not unfrequently result from sitting too near or sleeping in front of these contrivances. The night punkah is also very necessary in some parts of India, where the oppressive sultriness of the night forbids sound and refreshing sleep. But even this may become a source of danger. The punkah-puller is as likely to go to sleep as his master, when the wind from the punkah ceasing, the European becomes drenched in perspiration. The punkah-man suddenly wakening, commences a vigorous pull, and rapidly cools the sleeper by the evaporation thus produced—the result being chill, and its consequences. Or, while cooled by the action of the punkah on one side, the other half of the body in contact with the bed is wet with perspiration. The sleeper turns, and the process of evaporation, as above described, commences, with perhaps similar result. There are, doubtless, many parts of India where, from the extreme oppressiveness and sultriness of the night atmosphere at certain seasons, the punkah cannot be dispensed with, and the least of two evils, *viz.* the chance of chill and its consequences, must be chosen, instead of the certainty of the debility and destruction of health attendant on continued sleepless nights. But in the more northerly districts the punkah may often be dispensed with, and in such places as Bombay and other localities generally favoured with the sea breeze the punkah is scarcely required during the night.

Sleeping in the open air would at least secure due breathing space, but it is a practice which cannot be generally recommended. In the more malarious and damper portion of the peninsula, such indulgence should *never* be permitted, as chills from land winds and sea breezes are liable to result, and as malaria is supposed to be more powerful during the hours of darkness than in the rays of the sun. But there are parts of India where sleeping in the open air during the very hot weather is permissible, if not actually more advisable than subjection to the uncertain action of punkah, thermantidote, or tatty. In those countries of Western India where the hot winds blow steadily in one direction by day, and where heated, if not hot, winds continue far into the night, the cot may with safety be carried into, and used in the compound, with some chance of refreshing sleep.

Although by avoiding direct exposure, and by securing free ventilation and pure air, the various forms of sunstroke and sun fever may be generally escaped, there are still other and more insidious results from prolonged residence in a hot climate, which sooner or later show themselves in the constitution, more rapidly in some persons than in others, being in a great degree dependent, *first*, on natural constitution and temperament, and *secondly* on manner of life, especially as regards indulgence in alcoholic liquors.

Continued heat acts injuriously on the person of a native of a temperate climate in various ways, both through the nervous and the circulatory systems. On the nervous system it appears to have a *direct* depressing effect, evidenced by irritability and diminution of energy. On the circulatory system it acts in a different manner (although tending to the same results), and which may be thus briefly explained:—

The greater portion of the waste of the body, or of material which, having served its purpose within the body, must now be expelled, is passed off by the lungs and liver. The atmospheric oxygen taken by the lungs into the system unites in the delicate tissues of those organs with the carbon of the blood, which it thus cleanses of noxious or effete matter, returning it to the external atmosphere in the shape of carbonic acid. In a temperate climate a full-grown man thus gives off with the breath about eight ounces of carbon every twenty-four hours. But the atmosphere of the tropics is, from the heat, more rarefied than in a cold climate, the result being that a given bulk of air must contain less oxygen in the former climate than in the latter. As a necessary consequence the carbon breathed out from the lungs in the shape of carbonic acid is diminished in quantity. Therefore some other organ must perform compensating work, or the blood must become charged with noxious carbonaceous material. Doubtless if persons entering the tropics accommodated their living to the altered circumstances in which they are placed, such results might be to a great extent prevented. But as a rule endeavours of the kind are not made. People coming to India continue to live as before, or even take more rich food, ale, wine, or brandy, than they had been accustomed to consume in Europe. But the effete matter not required for the nourishment of the body must be removed from the system, and so the liver is excited to additional action. As a consequence the liver may become congested or even more seriously diseased; or failing to perform its function the bowels may be compelled to compensating action in the form of diarrhœa. Lastly by the retention of carbonaceous matter in the blood this fluid becomes depraved and deteriorated, and is, in fact, in a semi-poisoned condition. Lassitude and fatigue are felt on the least exertion, the skin becomes pasty, pale, or sallow, the circulation is languid, the nights are restless, the mental faculties are less vigorous, and the daily avocations are performed with difficulty. There is also predisposition to a variety of ailments, as boils, skin, spleen, or liver affections, or fever. There is no doubt that a large proportion of the diseases of the digestive organs, which are so prevalent among Europeans in India, results, in a great measure, from the habitual consumption of a much larger quantity of food, and this especially of a rich and stimulating character, than the system requires. The loss of appetite consequent on the diminution of the demand for combustive material is set down as altogether due to the debilitating influence of climate, and an attempt is made to neutralise this by artificial provocatives, which, while affording temporary relief, in reality pave the way to further deterioration. Such a debilitated condition may occur in those predisposed by constitution, temperament, and habits, within even a few months or years, or it may be deferred for a much longer period. But to the very large majority of Europeans living in India, notwithstanding frugality and care, the time arrives when this degeneration does occur. It is true we occasionally see Europeans who have lived on the Indian plains for many years without change, and without loss of health or vigour. But these are exceptional instances, and only illustrate the inherent power against climate possessed by some constitutions. As a rule the climate *per se* does sooner or later debilitate the European, rendering change to some cooler latitude imperatively necessary, and this debilitation will, as a rule, the sooner occur, the less careful as regards diet the person may be. (For further remarks on diet *vide* p. 534.)

The insidious and debilitating effects of heat may, however, be guarded against and delayed, *first*, by avoidance of exposure to direct heat—for the person who has suffered from sunstroke is the more liable to become affected by continued residence in a hot climate; *secondly*, by moderation in diet, especially as regards liquor; *thirdly*, by periodical change to Europe, or at least to some Indian hill station. A short periodical sojourn at some hill station, and a change to a European climate every six or seven years, would prevent many persons suffering from the effects of hot climates as here described. Those deferring such measures after warnings of constitutional failure as detailed above frequently find a very long period of absence necessary for the recovery of their strength.

The very common error, however, of expecting Indian hill climates to *cure* disease should not be entertained. As a rule, it is only those cases of ill-health when no specific disease exists which are benefited by change to the hills. But when lassitude, debility, loss of appetite, exhaustion after little exertion, and loss of energy and inclination for the daily avocation are the principal symptoms, the climate of the Indian hill ranges, particularly of the Himalayan stations, will generally prove most beneficial. By such change the appetite and digestion are improved, the vital powers are stimulated, and the physical vigour is regained. Residence in the hills may, moreover, be regarded, not only as exerting a sanitary effect on the body, but also on the mind; the freedom from the harass of daily work and the change of scene and society tending to raise and exhilarate the spirits, depressed by the continued influence of the climate of the heated plains. Much care, however, is necessary to guard against the effect of chill consequent on the change to the lower temperature of the hills.

MALARIA.—Malaria, although never yet isolated by the chemist, is, from inductive reasoning, admitted to be a poisonous emanation from the surface of the ground, and particularly from such surfaces as have been recently flooded with water, and on which there is rotting vegetation. It is, however, often found active in localities where little of the latter exists, as in the sandy semi-deserts of Western India, and on some rock formations. Malaria most prevails during, and at the termination of the rains, when the sun emerging from the monsoon clouds causes the drying up process to commence. It is most active during the hours of night and least so in the day, when many places dangerous by night may be visited with impunity. It is also more potent near the surface of the ground than at any elevation, and its progress, generally with the wind, is stayed by trees, by water, and by artificial screens, as gauze netting.

N.B.—*For a longer description of Malaria and its characteristics the reader should refer to p.* 163, *article* FEVER INTERMITTENT, OR AGUE.

From the above, and from the statements made in the reference given, it is sufficiently evident that the measures to be taken to guard against the effects of malaria—generally malarious fevers or spleen disease, or malarious cachexia—are principally based on the avoidance of those localities in which malaria most prevails; or at least on avoidance of those localities in which residence or travelling is shown by experience to be most frequently followed by malarious maladies. Whether we regard malaria as a specific poison or entity, or whether we regard it as something yet undiscovered, there is no manner of doubt that certain diseases do arise in certain localities, and that such diseases may be lessened or even altogether prevented by certain agencies, the principal of which are indicated in the following remarks. We cannot see, or even yet isolate by chemical or other means, the poison of cholera, or of typhus fever, or of typhoid fever, or of many other diseases; but we do not doubt their existence, and we know under what circumstances they may arise, or become aggravated in intensity. On the other hand, we are able to isolate and even transport from place to place the germs or poison of such maladies as small pox, cow pox, venereal and other affections. Similarly, there are certain hygienic or sanitary rules, by which the chance of escape from the latter diseases is materially increased. And so it is with malaria. We know, from experience of its effects, where it is most produced; and we also know from experience in what manner such effects may be most probably avoided.

When, therefore, necessitated to remain in or pass through malarious districts, the night air is to be as much as possible avoided. Wearing a silk handkerchief round the mouth and nose, or better still, the charcoal respirator as sold by chemists, is a good plan when moving through very malarious countries. A very efficacious form of respirator may be readily constructed by placing layers of charcoal between pieces of silk. If obliged to sleep in unhealthy places, doors, windows, or tent *purdahs* should be closed, especially towards the malarious or damp locality. In many parts of India, safety from malarious fevers can only be secured in the autumnal season by thus closing the doors, the punkah or thermantidote being then necessary to procure sleep. Sir Emerson Tennent, writing of the fever districts of Ceylon, states that curtains round the bed act as preservatives from disease. This, however, is not sufficient in the more malarious districts of India. Particular care should be taken to close all openings between the sleeper and known or presumed malarious localities, even although the wind may blow from the former towards the latter. Habitations or tents should never be placed to leeward of suspicious marshy surfaces. Unnecessary fatigue must be avoided. When either the body or mind is more than ordinarily fatigued, malaria is more likely to produce bad effects. Similarly depressing passions, as anger, grief, and prostration after intoxication, render the body more liable to malarious affections, as in fact to any other disease.

The use of alcoholic or fermented liquors is not, however, to be entirely forbidden. When journeying by night through known malarious districts—which during the monsoon and after this season comprise nearly the whole of India—two or three tablespoonfuls of brandy not too much diluted will be beneficial. The stimulus thus afforded will give temporary support and lessen fatigue, by preventing too rapid waste of tissue. The quantity is not sufficient to induce subsequent depression, while the advantage of local gastric or stomachic, and slight general stimulation is obtained.

It may be here worth mentioning, that a stiff glass of brandy and water will sometimes cut short an incipient attack of ague. It should, however, be taken at the very commencement of the cold stage, otherwise it will be more prejudicial than beneficial. French doctors especially report favourably of this plan.

Coffee is a useful beverage as a prophylactic against malaria, but is more adapted for general use during unhealthy seasons than for occasional consumption when passing through feverish districts. Coffee infusion is invigorating, and does not induce subsequent depression, the effect being confined to the first nervous stimulation. It is stated that an infusion of unroasted coffee is a more powerful antiperiodic or remedy against malarious influences than the roasted berry, and an infusion of the former may therefore be taken in malarious localities and seasons.

Tobacco smoking has been stated to exercise some preservative influence, and taken in *moderation* it may prove beneficial. It is well known to physiologists that tobacco, like tea, coffee, and alcohol, restrains the waste of animal tissue, while it also exercises a tranquillising influence on those accustomed to its use. The wholesale denunciation of tobacco is indeed neither in accordance with theory nor experience. But as with alcohol, excess of using either agent will, by the subsequent depression and nervousness so induced, predispose to those very maladies against which moderate use may afford some preservative influence.

The diet of persons residing in malarious countries should be nourishing and liberal. Facts display, in a striking degree, the prophylactic influence of a sound dietary against the attacks of malaria. For instance, it is credibly stated that under better conditions of diet and shelter, the crops in the Roman Campagna are now harvested without the sufferings from fever formerly attending these operations. Dr. Christison also, in his Address delivered before the 'Social Science Association' in 1863, attributed the disappearance of ague in Scotland very much to the improved condition of the inhabitants as regards shelter from the weather, and diet. The same changes may be observed in India. Where the inhabitants are more poorly nourished, malarious disease, especially large spleen, abounds, and the manner in which natives of the country improve under better conditions of diet and living is a well-understood sanitary fact. Any scorbutic taint in the system—the result of food deficient in some requisite vegetable constituent—renders the individual more liable to malarious disease. As a safeguard against this condition a due proportion of vegetable diet is therefore necessary. In malarious countries the stomach should be invariably fortified before going abroad in the morning by a cup of tea or coffee and a biscuit; and if a long journey is contemplated, a good meal, preceded by a dose of quinine, is advisable.

Quinine should be used as a prophylactic, and may be taken habitually once or twice a day, in doses of from one to three grains, during the malarious seasons of the year; or a larger dose, as six grains, previous to entering a malarious locality. It may be taken in water, with a few grains of citric acid, or with a few drops of dilute sulphuric acid. If mixed with coffee the bitter taste is somewhat disguised. Or it may be taken in a little sherry wine. A wine glass of milk punch is a good vehicle, as it neutralises the taste of the quinine more than any other agent. Thus prepared quinine may be taken with advantage just previous to meals. Should the taste be deemed an insufferable objection, the quinine may be formed into pills with a little gum water; but it is not so effectual when taken in this shape, unless a larger quantity of quinine is used. The continued use of quinine in this manner is in no way injurious; although if the doses are too large, temporary singing in the ears, headache, or even deafness may ensue. Also in some few constitutions, quinine induces an affection of the skin resembling nettle rash, causes sore throat, or gives rise to some other distressing symptoms. Persons thus by peculiarity of constitution prevented from using quinine should take three or four drops of the *Liquor arsenitis potassæ* instead: this remedy to be taken *after* and not before meals, as advised for quinine. Or the new preparation *quinovina* may be tried.

Particular care should be taken not to drink water from wells or pools, in which quantities of leaves or other decaying matter may have fallen. If necessitated to use such water, it should first be boiled and then filtered through sand and charcoal. There is strong evidence, both positive and negative, tending to prove that water may hold malaria in solution, and that the poison may thus be introduced into the system.

It has already been remarked that malaria is more active or powerful during the hours of night than during sunlight. And it is a well-known fact that the human system is more likely to become impressed by any cause of disease during the relaxed condition of sleep than when awake and in action. It is also well ascertained that individuals who have once suffered from malarious fever may experience a relapse of disease by imprudent exposure to cold. Hence the necessity of using, both by day and night, tolerably warm clothing, and especially flannel, than which no substance is better adapted to preserve the surface of the body from sudden changes of temperature, so often occurring in India, and especially during the night. It has been asserted that malaria not only enters the system by the lungs and stomach, but may also be absorbed through the pores of the skin. When we recollect that every square inch of the latter organ contains upwards of 3,000 pores, and that thirst may be immediately relieved by immersion in water, which passes *into* the body through these pores, in the same manner as perspiration passes *out*, the theory that the skin may absorb malaria is at least plausible. As a protection against this presumed danger, equally as against sudden vicissitudes of temperature, flannel is the best material, whether by day or by night.

Malaria is also presumed, from its effects, to be heavier than atmospheric air. Instances are numerous where those living in lower storeys suffered from fever, while residents in the same locality living in upper rooms retained their health. This was painfully demonstrated at the Padua Hospital, at Guadaloupe, at Seringapatam, at Barbadoes, and in Calcutta in 1863, when the fort ditch was allowed to empty itself, and the inhabitants of adjacent lower storeys suffered in consequence of the noxious emanations then generated. It was stated in evidence before the Royal Sanitary Commissioners that soldiers lying down intoxicated in China frequently died from the combined effects of drunkenness and malaria. Both in France and Italy instances have occurred of labourers dying almost immediately from merely sitting or lying on the ground in the immediate neighbourhood of a malarious ditch or ravine. Only recently, in the columns of the 'Indian Medical Gazette,' Dr. Fayrer reports a case of malarious poisoning in Calcutta, where death occurred in a few hours. In short, there is remarkable unanimity in the opinions, that malaria may both kill with great rapidity, and that it is most powerful near the surface of the earth. The damp and mist of night, or rather the descent of dew, has been presumed to retard the rise of malaria, and this mist is frequently only observable a few feet above the ground. Hence the desirability of sleeping in upper rooms in extraordinary malarious seasons or localities in order to escape the probable concentration of malaria near the surface of the ground.

Other personal hygienic, or general sanitary regulations tending to preserve from the effects of malaria may be briefly mentioned, as follows :—Avoiding the cold bath when liability to febrile attacks is present, or when the body feels cold, and a warm glow or reaction does not occur after the bath. Avoiding in every way unnecessary exposure to colds and chill. Among general sanitary regulations may be brought forward attention to the disposal of bath-room water, which should not, as is so often the case in India, be allowed to sodden the ground in the neighbourhood of the house. *Secondly*, care not to live under rotting chuppers or thatch. *Thirdly*, not to permit garden ground in the vicinity of the dwelling to become sodden and saturated by *over-irrigation*, as it then becomes a very fertile source of malaria, although harmless when only sufficiently watered to assist the growth of vegetable life. *Fourthly*, taking advantage of the power forest trees are known to possess in preventing the passage of malaria from one locality to another; and which should, therefore, be planted between dwellings or inhabited places and adjacent malarious localities, as swamps and marshes. The *Eucalyptus Globulus*, or Australian blue gum tree, and the common sunflower, are both stated to possess great power in absorbing the malaria of marshy places. *Fifthly*, taking care that the locality is well drained, so as to prevent lodgement of surface water, and the consequent sodden drying condition. *Sixthly*, periodical escape from the malarious Indian plains to one or other of the elevated Hill Sanitaria, where, although malaria may exist, its power is not so great as on the adjoining lowlands, and where, from the absence of great heat, the constitution quickly becomes reinvigorated, and is thus the better enabled to withstand what malaria may be present in the atmosphere of the mountainous regions.

CHILL or COLD is in India a most fertile source of disease; fever, and ague, or at least secondary attacks of fever, rheumatism, dysentery, diarrhœa, croup in children, and many other complaints arising from this cause. *A priori* it would appear that taking cold in so hot a climate would be far from probable; but, in fact, the exact reverse is the case. The very heat itself renders the surface more impressionable to falls of temperature, and it has already been shown (p. 509) how rapid and extended these may be. Again, the heat induces people incautiously to divest themselves of garments after exertion, to sit in draughts for coolness, or otherwise expose themselves to chill, with the almost inevitable results, a common cold, feverishness, or some worse disorder. Or a similar effect may be produced, as already mentioned, from the action of tatties, from the punkah, from the thermantidote, or from sudden breezes springing up and playing over the sleeping person. The advice given many years ago to the writer by an old Indian, and which may well be repeated, was never to lose sight of the blankets brought from Europe, which so many, landing in the Presidency towns, dispose of as no longer necessary; the fact being that protection from cold is even more necessary in India than in a cooler climate. It should be recollected, particularly as regards night clothing, that a little temporary inconvenience from being too warm is preferable to perhaps a serious and prolonged illness from chill. But the methods of protection from chill are so apparent that further remarks must be superfluous; while observations on the material for clothing will be found under that heading, page 538. The brevity, however, with which this subject is treated must not be accepted as any index of its importance; for some authors have not hesitated to question the existence of malaria, attributing all so-called malarious diseases to chill alone.

Unfortunately for this argument, chill or cold will not excite *per se* an attack of ague; but experience has shown that it is quite sufficient to *re-excite* attacks of fever in the person who has once suffered from the disease. In short, exposure to cold, and especially to *damp* cold, is perhaps the most prolific source of disease in the tropics; meaning by cold not a lowering of the temperature to the standard of temperate regions, but those sudden alterations from a very high to a lower standard, so common especially about the monsoon seasons in India. Whenever, as so often occurs in the autumnal and winter seasons, cold nights and hot days characterise the climate, then, without suitable protection by change of clothing, there will be danger of disease—fever, dysentery, or diarrhœa; and more especially so when the atmosphere is also damp.

WATER.—Keeping these three prominent causes of disease, viz., *heat*, *malaria*, *cold*, constantly in mind, attention to the drinking-water becomes one of the next most prominent individual hygienic duties. And when it is recollected how many diseases may be introduced into the system through the medium of water, it will be evident that too much care cannot be exercised in procuring a pure supply of this important necessary. Thus, as already mentioned, ague has been known to occur apparently from the use of impure water. Spleen disease may originate from similar cause. The introduction of the guinea worm into the system is, probably, always by water. Dysentery and diarrhœa are excited by water containing both animal and vegetable impurities. Dyspepsia will occur from a similarly impure fluid. Stone in the bladder, Derbyshire neck or 'goître,' are other results of the continued use of bad drinking-water. Cholera also, it is believed, may be propagated by contaminated water. And when the filthy habits of many Natives, as regards their drinking-water, are borne in mind, the European will find a personal supervision of his own supply the more incumbent. Drawn from a well generally uncovered, containing all kinds of impurities, and on the verge of which, or even in which, Natives wash themselves and their clothes; or still worse, taken from a tank in which men and women and animals drink, bathe, wash, wallow, and otherwise defile, the water next passes into the Bheestee's mussack, a receptacle made of untanned hide, and which is probably never cleansed until rottenness from age and use renders its opening and repair positively necessary. Such water, if the European did not vigorously protest, would be daily given him to drink. Even vigorous protests would only result, as a rule, in the addition of another odour or taste to the fluid, by straining through a dirty cloth. Hence the necessity of insisting on drinking-water being subjected to a filtering process, and of frequently personally supervising such process. Filters may be constructed in the form of three common 'gurrahs' placed one above the other, on a tripod stand, the two upper ones filled with layers of sand and charcoal, the lower one empty to receive the water straining through small holes in the bottoms of the others. Or what is preferable, a magnetic filter may be purchased, either sufficiently small and portable for camp use, or large enough to filter any amount of water. But it must be recollected that all filters become, in time, foul and dirty. The home-made 'gurrah filter' of sand and charcoal will require changing at least *monthly*; others according to size and capability, which may be ascertained when purchased. For travelling, the porous stone bottle is a good filter. Placed in a 'gurrah' of water, the fluid quickly finds its way into the interior of the filter, and drinkable water is obtained. A small portable syphon carbon filter may also be useful on journeys, when servants are not in attendance.

Filtering water should never be neglected in India, however pure and sparkling the fluid brought may appear. Although seemingly unexceptionably pure and tasteless, it may still contain atoms deleterious to health, such atoms not being perceptible to the senses. That the invisible germs of cholera, the ova of guinea worm, or the active spores of other maladies may exist undetected in water, will not create surprise, when it is recollected that a single drop of water may contain five hundred millions of living infusoria, a number equalling that of the whole human species now existing on the face of the earth.

If it be desired to render water as pure as possible, to reduce the chance of the introduction of disease into the system by water to a minimum, the practice of boiling previous to filtering it will be adopted. Water, to be rendered as pure as possible, should be first boiled, then allowed to cool, and afterwards filtered. Boiling will not only destroy most organic impurities, but will also cause the deposit of inorganic salts or material held in solution. Neither does the double process destroy the taste and pungency of the water, which is restored during the time it is filtering by the reabsorption of air by the fluid. The desirability of both boiling and filtering drinking-water cannot be too strongly insisted upon.

Condy's Fluid, or permanganate of potash solution, is also useful for purifying water when boiling and filtering are not practicable, as on active service, or on sporting expeditions. Then a small portion of the permanganate may be used, as described under the head 'Condy's Fluid,' p. 503.

The *Strychnos potatorum* fruit (Hindustannee name *nirmulee*) is also useful, and often employed by the Natives to purify water. One of the bulbs is cut in half, and the freshly exposed surface rubbed on the inside of the vessel. It acts as an astringent, and will to a certain extent cleanse dirty water, but the water must stand some hours.

As a necessary result of the heat of the climate, and of the consequent constant evaporation of moisture from the skin, Europeans are more thirsty and require more fluid as drink than in their own country. But the practice of drinking largely, even of water, is not commendable. Thirst should be as much as possible striven against, otherwise a habit of drinking deep draughts is contracted, which habit eventually tends not only to weaken the digestion, but also to debilitate the skin by the increased perspiration following excessive drinking. Moreover, very soon it is found that such drinks do not allay thirst. Water, and iced water particularly, should be rather sipped than swallowed by tumblerfuls, and this especially when the person is heated; urticaria or nettle rash and many other skin diseases not unfrequently following indulgence of this kind.

To allay thirst, however, there is no better beverage than water. But many persons are under the impression that by drinking aerated water they will escape the ills so often the consequence of an impure water supply. This, unfortunately, is far from being the case. For soda-water manufacturers in India are sometimes not very particular what kind of water they use. It may contain lead, or oil from the machine ; and if filtered, which is often neglected, the water thus aerated is seldom if ever boiled. Greater safety will be secured by personal supervision of the drinking-water than by the general use of the so-called soda-water of the shops. Similarly when it is mentioned that there are infusoria which retain vitality in boiling water, enough will have been said to dispel the very popular delusion that the addition of brandy or other liquors to bad water will render it potable, or even less injurious.

SLEEP.—It has been well observed by a medical author, that not to sleep in comfort in India, is to prepare the system for disease. Yet in this country there are many hindrances to the European obtaining that amount of refreshing slumber which is so desirable. During certain months of the year, particularly in the more southern parts of the peninsula, when the nights of the monsoon season are moist and 'muggy,' the European, after a restless and disturbed night, arises tired, languid, and unrefreshed. In the fierce hot weather of Upper India, heated winds blowing almost to dawn, often accompanied by dust and sand, produce similar restlessness. Then in most localities there are musquitos, which, although so small and apparently insignificant, are capable of preventing or at least disturbing the slumbers of most Europeans. In addition, dinner taken late, from convenience or other causes, tends to produce restless nights. One or two nights of disturbed sleep would not, of course, much signify to the average robust European; but when the causes are in operation for months together, the frame becomes debilitated, and is therefore placed in the exact condition most favourable to attacks of disease. And, as before stated, malaria is most powerful during the hours of darkness, or when the individual is most debilitated and distressed by vainly tossing throughout the night on a sleepless couch.

The measures to be adopted to secure comfortable sleep in India resolve themselves into protection from heat, from musquitos, from thirst (often the consequence of improper diet and late dining), and from malaria. Protection from heat is to be attained by the judicious use of the punkah, or other artificial means of cooling the atmosphere, regarding which no more need be said than has been advanced at p. 516. By sleeping in upper rooms when practicable, where, at some elevation from the ground, air is often in motion, while all below is stagnant. By sleeping in some localities and seasons in the open air, as also mentioned at p. 517. Protection from musquitos may be secured either by the musquito curtains, or by the punkah, or by an elevated and breezy position, as is often afforded by upper sleeping apartments. Protection from malaria has already been considered.

DIET.--Vegetable food is, generally speaking, better adapted to a tropical climate than animal food; not that it is quicker or easier of digestion, for it is slower, but because it excites less commotion in the system during that process, and is not so apt to cause plethora. Such considerations should induce the European, especially when newly arrived, to partake sparingly of animal food, which is not required by the system to the same extent as in a temperate climate.

It has already been explained (p. 518) that carbonaceous material (of which meat, milk, eggs, fatty substances, contain a large proportion), taken into the system, is removed chiefly by the liver or the lungs, and that in a hot climate the lungs are less and the liver more instrumental in this process. Hence (as one means of avoiding disease of the latter organ) the urgent necessity of caution as regards quantity of food taken. Less meat and more vegetable matter should be the rule. But following the example of some classes of the Natives, and abstaining from meat diet altogether, is not desirable; for this procedure, which has been sometimes recommended, is based on a misconception. The custom of ages has habituated the Hindoo to taking large quantities of rice with pulses or corn; but a European would not digest this diet. Its bulk alone would prevent perfect digestion, even if aided by the large amount of chillies or other condiments taken by the Native; which in the unaccustomed stomach of the European would probably induce indigestion rather than the reverse.

It can scarcely be necessary to lay down rules of diet, but some cautions may with propriety be added. Of all things the most necessary is to remember neither to eat too much, nor from too many dishes. The more simple the food is, the better and longer will the stomach prove a good servant, rather than, as occurs when dyspepsia becomes confirmed, an irritable master. Avoid also eating too quickly, and masticate the food thoroughly, applying to the dentist for aid, if the state of the teeth does not permit the grinding of the food. Also let all food taken be, although simple, of the best quality obtainable. The following quotation from Sir Ranald Martin's work 'On Tropical Climates,' although lengthy, is so apropos that its insertion here seems excusable:—

'The newly-arrived European should content himself with plain breakfast of bread and butter, with tea and coffee, and avoid indulgence in meat, fish, eggs, or buttered toast. The latter alone often disagrees and occasions rancidity, with nausea of stomach, while it increases the secretion of bile, always in excess. A glance, indeed, at the "Bawurchee" buttering our toast with the greasy wing of a fowl, or an old piece of rag, will have more effect in restraining the consumption of the article than any didactic precept that can be laid down.

'In regard to dinner, were the European master of both time and circumstance, the early part of the afternoon should be that of his principal meal; but the great majority of men of business, whether official or mercantile, are unable to disengage themselves during the day, and thus from seven to eight o'clock becomes the settled hour.

'It is true that military men, excepting such as hold staff offices, may choose their hour of dinner, but fashion and routine rule this and other habits, and the mess hour is too late. Naval and military men are, beyond all others, devoted to system, and to a certain extent justly so. But system, like everything in this world, may be abused so as to degenerate into something even worse than mere routine. As matter of fact, regiments in general have luncheon ("tiffen") on table at one o'clock, with wine and ale, and a heavy dinner at seven with more wine and ale. Thus any officer who is so disposed may become the subject of a daily feverishness, soon to be followed by disease; and even such as are temperately disposed commit excesses in eating and drinking, often without being aware of it.

'An old staff officer in Fort William used to say that he had known more duels, courts-martial, and dismissals, to result from the "tiffen" alone than from any other cause; but what were the other results, in the olden times, of the "tiffen" and the dinner from year's end to year's end, there is no man alive now-a-days to tell! Although a great deal that was objectionable in the double meal has given way to modern improvement in the general habits of society throughout India, still too much of both tiffen and dinner remains. Both meals are greatly too much after the European fashion, while wine and ale are too liberally circulated, at least for health.'

LIQUOR.—For new arrivals in India it may be broadly stated that no fermented liquor is desirable. It would be well if all, for at least some months after entering the tropics, would refrain from anything more powerful than a little claret and water, and perhaps a glass of sherry daily. Brandy, whisky, gin, and other ardent spirits should be shunned as poisons. Beer of good quality is less deleterious, but is not necessary. After being some time in the country malt liquor may be taken, if more to the taste and agreeing with the person drinking it. And as a rule no beer, wine, or liquor should be taken excepting at meals. It should be fully understood, acknowledged, and acted upon, that in India fermented liquors of any kind should only be taken for their tonic, *not* for their stimulating effects. The habit of drinking, especially of consuming brandy and water, is one which insidiously grows upon the person so indulging, and from which disastrous results only too frequently proceed. Physiological science and experience alike teach us, that the condition of system most favourable to the invasion and development of zymotic poisons, is set up by the presence in the blood of organic matter in a state of change, decomposition, or fermentation. Hence the blood of the intemperate charged with alcohol is in the condition *par excellence* favourable to attacks of such maladies as fever, cholera, and sunstroke. The liver also is liable to become affected from too much indulgence in spirituous liquors, and the bad effects of the same agents on the brain might be portrayed with even greater force. But the loss of memory, the impaired intellect, the miserable thoughts, the imbecility, the loss of physical energy, so frequently resulting from chronic alcoholism, need not be dwelt upon here.

Although so strongly condemning the practice of constantly using alcoholic beverages, the opposite extreme of teetotalism is not recommended. As a rule Europeans in tropical climates require some amount of fermented drink as part of their daily sustenance. This is particularly the case with the old resident, and during the hot season, when the heat destroys the appetite, and exerts its depressing and deteriorating influence on the system. When the quantity of solid food is not sufficient to supply the waste of tissue, and to counteract the 'wear and tear' of body—which it often is not during the exhaustion and loss of appetite caused by intense heat—an additional supply of wine may be taken with advantage. But this can only be safely used for its tonic effects, and not for the temporary stimulation it affords. It is, indeed, the use, and not the abuse of fermented liquors, which is so much required. Moderation, instead of excess, is the great desideratum. But what moderation may be it is difficult to decide, so much depending on age, sex, temperament, and occupation.

EXERCISE.—A due amount of exercise in India is even more necessary to health than in England. As a rule, it may be stated that the most healthy people are those who take exercise regularly. The circulation of the blood is thus equalised, and the tendency to congestions, particularly of the liver, is often thereby checked. There is, however, a very general feeling of languor, torpor, and inactivity, the effect of heat, which prevents many people taking that amount of exercise which is desirable. Walking, riding, shooting, badminton are the best exercises—cricket, boating, rackets, involving for the majority too great a strain on the muscular system. Whatever exercise is taken, it should not be sufficient to induce exhaustion or fatigue. Extremes of exercise should be as far as possible avoided during seasons of epidemic, as the exhaustion thus induced tends to predispose the system to epidemic diseases.

CLOTHING.—The quality of dress in India depends in a great measure on the season and the part of India in which the wearer is located, and more especially on the duties to be performed. The resident in the south will not at any period of the year require the warm woollen clothing necessary for those residing during the cold season in the northern provinces. Neither will the man devoted to office-work want the strong durable material desirable for the classes employed in outdoor occupation. Generally, light tweeds are the most useful wear in India; but every person should possess warmer clothing, which may be required at any time. Underclothing is of more importance as regards health than external clothing, and, as already recommended, this should consist of flannel next to the skin. It is one of the best safeguards against fever, dysentery, and various other disorders. When the body is heated, a profuse perspiration wets the clothing, evaporation follows, checking the perspiration, and causing chill, and so originating numberless cases of illness. But chill is much less likely to occur when flannel is used. Evaporation takes place more rapidly from cotton and linen than from wool. Neither does wool absorb moisture so readily as cotton. If a piece of flannel is stretched over a glass of water so that it just touches the surface of the fluid, scarcely any moisture will be taken up by the flannel. Linen or calico so placed will quickly become saturated. This explains the fact of chills more quickly occurring with linen or cotton than flannel clothing. Perspiration penetrates at once to the external surface of the linen, and is acted upon by the atmosphere. With a woollen garment perspiration is more retained by the texture, and absorbed more gradually, and thus not so quickly evaporated from the surface.

Wool, again, is a non-conductor of heat. Put a woollen sock on a warm foot in winter, and the foot will keep warm much longer than if covered with a cotton one. For the same reason—because wool is a non-conductor of heat—a woollen shirt will keep the wearer cooler in a heated atmosphere than a linen one. This is susceptible of direct and easy proof by placing three thermometers on three beds, covering one with blankets, one with linen, the third with cotton, when the first will be found to show a reduction of several degrees of temperature, the greatest variation being between an instrument covered with linen as compared with that covered with wool, cotton giving a medium between the two. This proves that an object covered with wool is less susceptible to changes of temperature than one clothed with linen or cotton. And this is, indeed, in accordance with the laws of nature; wool, and similar non-conducting materials—possessing as they do the properties best calculated to protect from atmospheric influences—being the natural clothing of animals. A woollen coat has the merit also of affording more protection to the back (the necessity of which has been already dwelt upon at p. 514) than either linen, silk, or cotton, which, although *looking cool*, afford no protection in this respect.

BATHING.—The daily bath is an essential requisite in Indian life, and when the excessive action of the skin is recollected, and that in every square inch of skin there are some 3,000 perspiratory pores, the necessity of attention to this organ becomes sufficiently apparent. But besides these little tubes, there are large numbers of small glands, secreting an oily substance, which is conveyed through other minute orifices to the surface of the skin, which it thus insensibly lubricates, while freeing the body of material no longer required in the system. If this oily secretion and the perspiration are left undisturbed for some time, the pores become blocked up, a safety valve of health is closed, and some malady is almost certain to ensue. In India, moreover, there is at all times a greater action of the skin than in temperate climates, and if more attention is not paid to this organ, the health will very soon suffer. The bath is, therefore, an essential part of the ordinary daily routine, if only as a matter of cleanliness. But it also may be regarded as a general tonic, imparting or maintaining vigour and energy, and fortifying the system against the influences of climate. As a rule, cold water is best for bathing purposes; but whether cold, tepid, or warm water is used, must be decided by the effect produced. There are many persons who after a cold bath feel a pleasurable glow and healthy reaction over the whole surface. To these the cold bath cannot fail to be beneficial, both as cleansing the surface, and as a general tonic to the system. On the other hand, there are numerous individuals who after a cold bath feel depressed, languid, and as if shrivelled, and whose cutaneous surface does not answer the shock of the cold water by any reaction. If this occurs, or if the fingers become at all cold or white after bathing, cold water must be abandoned, and tepid or even warm water substituted. Some persons will bear a hot bath in the warm weather, but not in the cold season, and this peculiarity should always be attended to. But the extreme of too hot water must be guarded against, otherwise gradually the habit of bathing in very hot water will be contracted, to the enfeeblement of the skin and weakening of the system. Bathing in 'chunamed' baths is not to be recommended, as the water there is often very cold, and the shock may be too great. Many persons have with truth dated the origin of fever or 'liver' to an imprudent plunge. Where there is a large lake or river, free from crocodiles, leeches, or other dangerous living things, bathing may be safely indulged in, with necessary precautions against the sun. It may be useful here to remark that the temperature of a cold bath is 60° Fahr., of a tepid bath 75°, of a warm bath 90°, of a hot bath 100°.

HOUSES.—Europeans in India seldom have much choice of a house, the number of bungalows in each up-country station being generally exceeded by the number of residents. And it must be confessed that the majority of these Indian bungalows are not what is requisite for health or comfort. Although often affording sufficient space, they are frequently not at all raised from the surface of the ground. Sometimes there is only an earthen flooring. They are mostly constructed of porous material, as inferior or sun-burnt bricks and mud, and they are in many localities covered with an old, sometimes rotting, chupper or thatch. As a consequence during the monsoon—especially in those parts of the country where the rains are heavy, and the atmosphere saturated with moisture—damp rises from below, and damp permeates into and percolates through the walls, while not unfrequently the vitiated atmosphere caused by a mouldy rotting thatch is even recognised by the sense of smell. Most Indian bungalows in Mofussil or up-country stations have been originally built hurriedly, and as cheaply as possible. The majority of occupants being but temporary sojourners, few have cared to expend much money on dwelling-houses, for which expenditure a remunerative return would be uncertain. Similar motives have also influenced Natives when becoming owners of houses tenanted by Europeans. Even many of the best houses will be found to have attained their present dimensions by periodical additions to small temporary erections.

It is impossible to frame any rules for the construction of a dwelling-house adapted for Europeans, and suitable for every part of India, as both the material available and the climate differ much in various parts of the country, necessitating modifications of any standard plan. This has been found to be the case with European soldiers' barracks, so that the structures most adapted for the purpose in Southern India are now generally admitted to be less fitted for the northern parts of the peninsula. *Speaking generally*, it may be stated that a dwelling-house in India should be elevated some four or five feet from the surface of the earth, by which greater freedom from damp and greater coolness are secured. Raising the house above the surface of the ground also tends in some degree to prevent the entrance of snakes or other noxious living things; for although snakes will easily ascend steps, they are not so likely to pass up a comparatively narrow flight of steps as into a house having doors opening flush with the ground. The walls of the Indian bungalow should be of masonry as thin as compatible with strength. The idea so prevalent that very thick walls prevent heat is a mistaken one. Massive walls, once thoroughly heated by the sun's rays, do not cool during the hours of night, or, indeed, scarcely until the cold weather is well advanced, and until their temperature is so diminished they do not cease to radiate heat on the occupants. Some degree of solidity is of course necessary for protection from the sun, but this may be obtained by the same thickness of wall desirable for strength, and which should not be exceeded. The best material for floors in private dwellings is either smoothly hewn stone of a non-porous description, Venetian tiles, or thirdly, 'chunam.' But the latter is liable to break up and to require constant repairs. Either of these floors possesses the advantages of cleanliness, of coolness, and of not affording cover or crevices for snakes or scorpions. It may be here mentioned that with such floors the carpet need not approach within a couple of feet of the walls, and does not require nailing down—a plan not only permitting the carpet to be taken up easily and frequently for cleanliness, but also affording additional protection against snakes and scorpions, which may insinuate themselves between the wall and the edge of the carpet where the nails securing the edge have, as they probably will do, 'started,' and rendered the carpet loose. With regard to the upper structure or roof, all things considered, there is nothing better than well-made and well-fitting tiles, which should be large enough and heavy enough to prevent mischievous crows displacing them from position. Instead of lath and plaster ceilings, 'chuts,' made of whitewashed cotton cloth, are commonly used in India. To this arrangement there is no objection, provided the chuts are well secured, so as to prevent ingress into the space between the roof and ceiling of sparrows, bats, or pigeons.

Similar care must be taken that all apertures between the wall and overhanging roof, or eaves, are well stopped; otherwise not only birds, but animals, such as squirrels, rats, bandecoots, and cats, will find their way into the interior. Such intruders dying in the roof sometimes give rise to much trouble, and to disagreeable if not unhealthy effluvia, while the noise they make, especially at night, is anything but pleasant or conducive to repose. As a general rule, Indian houses should possess one or more chimneys and fireplaces. Such apertures not only tend to the ventilation of the apartment, but in southerly India fires may sometimes be advisable on account of damp, while in the more northerly parts they are always acceptable, if not actually necessary, during the cold weather. Verandahs are an addition which cannot be well dispensed with, and their breadth can scarcely be too great. The roof of the verandah should descend within seven feet of the raised plinth, and should be supported by thin pillars. If sustained by thick pillars, the latter retain the heat, and thus add to the warmth of the house. Heat and glare, which massive verandah pillars are supposed to diminish, may be better lessened by a succession of coarse chicks attached to the apertures. Doors and windows, of which there cannot well be too many, should also be furnished with chicks opening in frames—serviceable alike for keeping out glare and insects. In the districts where thermantidotes are used, the thermantidote hole must not be forgotten; and this should be placed rather lower than usual, by which the cool air is distributed more equably over the room. Lastly, the colouring of the inner walls should be a neutral tint, instead of the rough, glaring whitewash so often seen.

The site and position of a house must also claim attention. As regards site, the first thing to look for is good natural drainage, and therefore a slight elevation of the ground will be the preferable locality. But the surface of some parts of the country is so flat that this desideratum cannot always be secured—so level, indeed, that drainage is not even possible—and where this is the case elevation of the dwelling-house above the ground is the more requisite. The facility of procuring water for garden purposes, the proximity of trees, not overhanging the house, but affording shade in the immediate neighbourhood, the windward position to any marsh, stagnant pond, or Native village, a gravelly soil in preference to black or clay soils, a dry substratum of soil not saturated with water, the absence of rocks or overhanging hills in the vicinity, which would radiate heat on the house, are all desiderata which should be borne in mind, and if possible secured.

The position of the house is to be determined by two conditions, namely, the direction of the prevailing wind, and the diurnal sun line. But as these do not generally correspond, that position should be taken which will secure the greatest amount of perflation by the prevailing breeze, and the minimum of sunshine passing directly into the house. Thus, supposing the prevailing wind to be, as in the Western Presidency, from the south-west, and the sun line almost due east and west, the narrow or gable ends of the bungalow should be directed easterly and westerly, but with inclination to the south. Thus, while the prevailing south-westerly breeze would pass at an angle through the house, the maximum of sun would be on the gables, and the minimum on the front and back of the bungalow, where the largest openings must always be, and where shade is most desirable.

But, practically, it will happen that in most parts of India, even if anyone were willing and able to incur the trouble and expense of building a house as sketched above, he would be unable to do so from absence of material, or climate would demand some modification. For instance, in Lower Bengal and in several parts of the Madras Presidency, not only elevation above the surface of the ground, but upper sleeping rooms, are desirable as protection against malarious influences. In other localities an absence of lime may necessitate mud masonry, and then the walls, to secure the necessary strength, must be more massively constructed. Again, in very damp climates wooden boards are a better flooring than either stone, tiles, or 'chunam.' In some parts of the country tiles for the roof not being procurable, a thatch roof may be necessitated, or it may be convenient to use the roof so often seen in Persia, composed of empty 'ghurrhs,' or earthenware jars set in lime plaster. Fireplaces, again, may not be desirable additions in localities where the temperature is peculiarly hot, dry, and equable. In the matter of position, the endeavour to catch the prevailing breeze and to avoid the sun's rays may sometimes require relaxation; as on the sea coast, for example, when the entrance of a little more sun into the front or back of the house may be more than compensated for by free passage of the sea breeze. And so on might be mentioned many details in which available material or climate would cause modification.

With respect to space and size of rooms, it may be at once stated that rooms in Indian houses cannot be too spacious. The cubic space in European barracks found necessary for the soldier is 1,800 feet per man in the dormitories, and private houses should not give a less proportion. In European hospitals 2,400 cubic feet are allowed, and this may be remembered as a hint of the greater necessity of fresh air and ventilation in the sick chamber. It should also be recollected that no artificial system of ventilation and no amount of cubic space will obviate the necessity of natural ventilation, and natural ventilation is only obtained by open doors and windows. In the hot season it is necessary to close the doors and windows during the day in order to prevent the entrance of hot air; but so soon as the approach of sunset renders it practicable, doors and windows should be thrown open, and the free admission of air throughout the whole dwelling should be sought. There are doubtless low, damp, malarious localities where a too free perflation by the night air in certain seasons of the year would be undesirable; but, speaking generally, it may be accepted as an axiom that, provided the occupants of bungalows are protected from chill or cold, as would probably be caused by currents or sudden blasts of cold air, free ventilation from without will be more conducive to health than the vitiated atmosphere which must result when people live and sleep in apartments to which fresh air is denied access.

CONSERVANCY.—Persons cannot be too particular regarding the conservancy of their premises. Otherwise, the sweeper will simply remove bath-room refuse and deposit it in any corner. Here it may become the cause of disease, probably of *typhoid* fever (*vide* p. 157), now not uncommon in India, and acknowledged to be intimately associated with defective conservancy. All bath-room refuse should be taken away and buried. If cholera or diarrhœa prevail, the fæcal material should also be first disinfected by the addition of a solution of sulphate of iron (known in the bazaars as '*heera-kusees*') or by carbolic acid (*vide* page 504). It should also be known that Indian cattle and sheep will greedily devour human ordure, especially in the hot season, when their natural food (grass) is scanty. In this manner the ova or germs of certain maladies—tape-worm, for instance—may be taken into the body of the animal, may there undergo peculiar changes, and may then be taken into the human system with meat eaten, there developing into the perfect parasite, as a tape-worm.

CONDUCT OF THE PASSIONS.—The Natives have a homely proverb, borrowed from the Persians, to the effect that 'the proper devil of mankind is man,' and it is a fact that the state of health of Europeans in India depends much on the control exerted over the enemy within. Moderation in all matters, whether in eating or drinking, business or pleasure, is one golden rule of action; another, equally important, being the endeavour to avoid those fits of irritability, or even passion, to which the European, fretful from heat of climate, and often annoyed by the dilatory or otherwise objectionable conduct of the Natives, is too apt to give way. The influence of the passions on health in India has hitherto been little studied, and the importance of the subject little insisted upon. But it is a fact that ague at least not unfrequently follows, in the persons of those predisposed to the affection, fits of passion, or other mental excitement. And it is equally a fact that the *mens sana* is even more than ordinarily desirable in India as a security for the well-being of the *corpus sanum.*

MANNER OF LIFE DURING EPIDEMICS.—When epidemic disease, as cholera, for instance, occurs, it will be best not to make any radical or decided change in the manner of life. Caution as regards diet, exposure, fatigue, and local sanitation will be advisable, but any sudden change of habit which may tend to unsettle the system should be avoided.

CHAPTER V.

ON THE FEEDING AND MANAGEMENT OF INFANTS.

At no period of life is careful management so much called for as during the helpless condition of infancy, and nothing constitutes so frightful a source of infantile sickness and mortality as improper feeding. It is natural that an infant should live during the first months of its existence on the milk provided by the mother. At the time of birth the digestive organs of the child are in a comparatively immature state, and it is only gradually that their power becomes developed. For the first few months no saliva is secreted, the stomach and alimentary canal are comparatively short, and that portion of the latter called the *cæcum* is small. The teeth do not appear until the lapse of several months. All conditions pointing to feeble digestive capacity, and evidencing that the food must be specially adapted to the state of the digestive powers. And of such food there is only one kind, namely, milk.

It is in similar accordance with the dictates of nature that a healthy woman should suckle her offspring. It is well ascertained that the systematic avoidance of this plain duty often reacts injuriously in various ways on the system of the mother. But notwithstanding the extreme desirability of healthy females suckling their own children, the fact remains that there is a large number of Englishwomen living in India who are unable to undertake this duty. In addition to those suffering from actual disease, or weakened by former attacks, there is a still more numerous class who are debilitated, to a greater or less extent, by the combined influence of heat, malaria, and the relaxing nature of the climate. It has been already mentioned (p. 519) that the above influences lead to general, although often gradual, and sometimes long-deferred, degeneration of the blood. And this is, as a rule, more especially apparent in the weaker system of the female, particularly when child-bearing, parturition, and suckling (conditions always making a great demand on the strength of the woman) are superadded as causes of debility. It may be broadly stated that, as a result of residence in India, the majority of European women are physically unable to nurse their children after the second or third confinement. On the first occasion they may be equal to the task, and should, when possible, nurse. But with every desire to continue to fulfil such duties, they find their strength unequal to the strain on the system. And persistence in nursing after the appearance of the symptoms detailed at p. 560 is followed by gradual or even sometimes sudden cessation of the secretion of milk.

When the mother finds her milk inadequate to supply the wants of the child, and the choice of a wet-nurse, or of bringing up by hand, cannot be longer deferred, the question not unfrequently arises whether the mother's milk cannot be supplemented by hand-feeding. Many mothers are averse to delegating the duty of suckling their infants to other women; in the minds of some people there is an objection, as unreasonable as unconquerable, to their children being suckled by a Native female; others, again, may be unable to bear the expense of a 'dhai,' no inconsiderable item in some parts of India; or, as is not unfrequently the case in certain districts, a suitable wet-nurse is not procurable. Such exceptional circumstances must necessarily sometimes lead to the endeavour to supplement the milk of the mother by hand-feeding. But it is a practice which cannot be recommended. It is a fact that whenever the milk, especially at the commencement of nursing, is not *sufficient* for the wants of the infant, it is also more or less *deficient* in those qualities on which its nutritive properties depend, and it is, therefore, to a great extent unsuited for use. The limited supply itself shows that the constitution of the mother is unequal to the tax imposed, and milk of the best quality cannot be secreted by a person whose constitutional powers are failing. The sooner in such cases these facts are appreciated and acted upon by the employment of a wet-nurse, the better it will be for both mother and child. But if, on account of the reasons previously mentioned, or from any cause, a wet-nurse cannot be obtained, it will be advisable, on the appearance of the symptoms detailed at p. 560, as marking failure of the constitutional powers during nursing, for the mother to leave off suckling *immediately*, and to trust altogether to hand-feeding. It is alike injurious to mother and child for the former to secrete, and for the latter to imbibe, milk deficient in both quantity and quality. The child should then be fed as mentioned at p. 555.

The composition of milk and the selection of a wet-nurse or 'dhai' may now be considered.

One hundred parts of milk contain nearly ninety parts of water, the remaining proportion being composed of solid constituents, as *caseine*, or cheesy matter (a substance which differs little from the albumen of the blood), of sugar, fat, and various salts. The milk of women is liable to certain natural changes at different periods of lactation, or suckling. For example, the first milk secreted (called *colostrum*) differs from that afterwards formed in containing slightly purgative principles, the utility of which will be afterwards referred to (*vide* p. 565). Until the end of the first month the amount of sugar is proportionally less than afterwards, and the *caseine* or *nitrogenous* matter is presented in a more easily digestible form than subsequently. From the eighth to the tenth month sugar is in excess. On the other hand, caseine is most deficient during the tenth and eleventh months, and most abundant during the first two months. During the first month there is also more butter, or fat, and salts than at any other period.

From the above it is evident that when selecting a wet-nurse one of the leading requirements should be, that the milk should have commenced about the same date as that of the mother. The general health of the woman should be considered, and the freedom from any skin disease, such as itch or syphilitic affection, must be ascertained. The condition of the breasts should be examined, which should not be soft, flabby, and pendulous, but round, prominent, and affording a rather hard, knotty feeling. The nipples should be well developed and projecting, and these parts should be further examined for excoriation or chaps. A little milk should be procured, which should present a bluish-white colour, and possess a sweet taste. If tested with test paper it should afford an alkaline, not an acid reaction; and if examined under a microscope, oil globules should be seen floating about separate and free, and not massing together. Allowed to stand a few hours, it should give a thin film resembling cream. Dropped in water, healthy human milk should form a light cloudy mixture, and not sink to the bottom of the water in thick drops. Enquiry should be made as to whether the woman has been 'unwell' since nursing, for if so the milk is never so good, and will probably soon stop altogether. The condition of the child should be examined, and the mother of a weak, puny, badly nourished infant should be rejected. Although the age of the wet-nurse's child should as nearly as possible correspond with that of the infant requiring wet-nursing, the age of the wet-nurse herself is not so important a matter. A woman from twenty to thirty years old (neither older nor younger) is advisable; for it must be recollected that Native women commence having children at a very early age, and cease to do so proportionally early; and neither a very young girl, nor a woman approaching the termination of her child-bearing era, is desirable. The woman should be of temperate habits, not addicted to over-eating or to drink, or to smoking deleterious compounds of opium or hemp. In certain parts of India, a moderate indulgence in tobacco smoking must be permitted, as some women—Bheels, for instance—will rarely take service if debarred from the customary pipe. Lastly the hint may be added, that the association of the woman with her friends and relatives should, if practicable, be altogether stopped.

When in the absence of medical advice a wet-nurse is selected, the possibility of deception being practised should be held in view. A woman by drinking largely previous to examination, and by allowing the milk to accumulate for some hours, may present all the appearances of breasts well supplied with milk, while in reality the daily amount secreted is not sufficient for the nourishment of a healthy child. Such deception may be suspected when a thin, feeble-looking woman appears with overflowing breasts. The only sure method of detection is applying a child to empty the breasts, and watching the rapidity of the reaccumulation of the milk.

When wet-nursing is to be commenced from the birth of the child, it should be recollected that the milk of a healthy woman is too rich for the delicate stomach of the infant during the first two or three days of its existence. It should therefore be fed artificially for the first seventy-two hours, in the manner detailed at p. 555; and on the first three or four applications of the child to the 'dhai,' it should be permitted to take only a small quantity of milk from the breasts. If a wet-nurse confined at the same time as the mother of the child were available, the precautions as above would not be required; but this can rarely be the case. It is also in instances of the kind, when the child does not take the first milk from the mother, or on the occurrence of a premature birth, when no milk may be secreted, that some aperient dose (*vide* p. 565) may be necessary for the infant.

It occasionally happens that, from some unexplainable cause, the milk of one woman disagrees with a child while that of another woman suits from the first. Such exceptional case may be suspected when, after regulating the diet of an apparently healthy 'dhai,' and after any costiveness of the bowels of the woman has been removed by castor-oil, the child still does not thrive on the food afforded. Under such circumstances a change of nurses may be necessary. But alterations of the kind are often attended with much trouble and expense, and therefore should not be made on insufficient grounds. It should be recollected that very frequently when a Native *aymah's* milk disagrees with the infant, the reason may be found in the fact of the woman on becoming an *aymah* being able to indulge in a richer diet than heretofore. It has been found from experiment, that the quantity of *caseine* or *nitrogenous* matter in woman's milk increases with the free use of animal food, and diminishes on vegetable diet. Woman's milk thus becomes more like cows' or goats' milk, which, while containing less sugar, has a much higher percentage of this rich matter than human milk. Owing to the anxiety of parents that the nurse of their child shall be strong and healthy, too much or too rich food is often provided, the result being a change as above noted in the character of the milk, which therefore disagrees with the child. The fact of a child not thriving so well as could be wished with a wet-nurse cannot be immediately accepted as a reason why artificial feeding should be substituted, but must rather be regarded as indicating some dietetic error requiring amendment.

If the mother cannot suckle the child, and if from any reason a wet-nurse cannot be procured, artificial feeding must of course be adopted. But this, however carefully conducted, is a most fertile source of infantile disease and mortality. Human milk being the natural food of an infant, it will in most cases be preferable to somewhat relax the rules for the selection of a wet-nurse, rather than incur the risk of injuring the infant by other varieties of milk. It may be broadly stated that any ordinarily healthy woman's milk is better for a child than the milk of any quadruped.

When artificial feeding is indispensable it is expedient to modify the milk, so as to make it resemble as much as possible that of a woman. The best substitute for many delicate children is asses' milk, as in some respects it more nearly resembles that of woman than any other variety, particularly in the high proportion of sugar and large amount of water it contains, although there is a great deficiency in solid matter. It is for this reason better adapted for the delicate stomachs of persons or children reduced by illness, than for the wants of a vigorous growing child. In India goats' milk is perhaps most desirable, which, although containing more solid constituents and less sugar than human milk, is more like the latter than most samples from the cow. The latter fluid contains more caseine, fat, and salts than either, and less sugar than asses' or woman's milk. Analysis of milk, however, varies considerably, and it is probable that different samples secreted by the same animal would furnish somewhat different results, which must be influenced by feeding and the state of health of the animal. Hence it happens that sometimes goats' and at other times cows' milk agrees best with an infant. As a general rule for India, goats' milk may be said to be the most suitable, and it is often the most conveniently procured. Whatever animal is selected it should be fed and kept specially for the purpose, and the child's food should *never* consist of mixed milk, or of milk taken from two animals, even of the same class.

Supposing a child to be fed on asses' milk from its birth, For the first few days the milk should be given in the proportion of two-thirds milk and one-third water. After the first four or five days the quantity of milk may be gradually increased, until at the end of a fortnight asses' milk may be given pure. Asses' milk being so rich in sugar requires no addition of this kind. If cows' or goats' milk is used, it should be given for the first ten days mixed with one-half the quantity of water. After this period the amount of water may be gradually diminished until at the end of the fourth month goats' milk may be given pure, and cows' milk almost pure. At the end of the fifth month cows' milk may be given pure. Both goats' and cows' milk being comparatively deficient in saccharine matter, require the addition of sugar. For this purpose the preparation called 'sugar of milk' (or *lactine*) is preferable. Sugar of milk is not fermentable like other sugars, and is therefore less liable to turn acid on the stomach. If sugar of milk cannot be procured, pure white loaf sugar is best. Moist sugar should never be used, as it is certain to ferment in and disorder the stomach. It weakens the digestion, cloys the appetite, produces acidity, and often acts as an aperient. The quantity of sugar to be added to milk and water for artificial feeding is also a very important matter. Much harm is done by rendering the food too sweet. The desideratum is to form a compound resembling human milk, and the latter, although sweet, is not saturated with sugar. A moderate 'mawkish' sweetness is all that is required. The palate of the mother should be accustomed to the taste of good human milk, and the food prepared accordingly. It is worth recollecting that a little variation in the sweetness or otherwise of an infant's food will make all the difference as to the food agreeing with the child or not. The usual fault is that infants' food is prepared too sweet. In addition to the above precautions, if cows' milk is used, it will sometimes be desirable to render it less rich in *caseine*. This is to be effected by exposing the milk to a gentle heat in a wide open vessel, when a film of *caseine* forms on the surface, which may be removed with a spoon.

The above may be accepted as general rules for the feeding of an ordinarily healthy child. But it may often happen that, from accidental causes, such as overloading the stomach of the child, or from some deviation in the quality of the milk, temporary modification in the feeding, *generally in the way of further diluting the milk*, will be advisable.

Of course it is necessary that milk of any kind thus given should be perfectly fresh, and not in the slightest degree soured or turned, either by weather or by dirty vessels. Perfect cleanliness of the latter, and of the feeding spoon or nursery bottle, cannot be too much insisted upon; and to secure such cleanliness nothing is better than the constant use of hot water. Soured milk, or soiled feeding vessels, are often the undetected cause of bowel complaints.

It now remains to say a few words regarding the water used for mixing with infants' food. The importance in India of invariably using filtered water for household purposes has already been dwelt upon (*vide* Chap. IV., p. 529). But even further precaution is required where infants are concerned. The water should be first filtered and afterwards boiled. It should then be allowed to cool, and when required for use should be again heated to the proper degree. The temperature of an infant's food should be as nearly as possible that of the mother's milk; or, at least, it should not be below 96° Fahr. or above 98°. Barley water sometimes suits better than plain water to mix with the milk, especially when there is tendency to diarrhœa.

Respecting the use of condensed milks as food for infants, recent investigations would appear to show that while infants take readily to such foods on account, probably, of the sweet taste, and also grow plump and apparently thrive, they are not in reality strong when so fed. It is stated that a very slight ailment renders them markedly prostrate, to a much greater degree than when fed on fresh animal milk. Similar remarks are applicable to most advertised 'food for infants.' Liebig states that the usual farinaceous foods are the cause of most of the diseases, and of half the deaths, of infants.

The question when a child may be fed with some other food besides milk may now be considered. When a child is first given other food, it should only be used as an addition to the natural food, milk, and not as the main means of support. Farinaceous foods, as sago, arrowroot, rice, tapioca, gruel, so often selected on account of their supposed lightness, belong to a class of substances which are digested and assimilated with difficulty. In infants the imperfect development and form of the digestive organs, and particularly the smallness and straight shape of the stomach, show that food needing to pass through a long process of preparation within the body before it becomes fitted to nourish the system is unsuited to a child. Such food excites eructation and vomiting (the latter so easy in the straight stomach of a child), intestinal irritation and diarrhœa. And not only are these farinaceous articles of food hard of digestion, but when reduced to their ultimate elements, as they must be in that process, they differ much from milk, the only natural food, and are thus rendered the most unsuited for the nourishment of the body. Food has two uses, one to afford matter for the growth of the body, the other to give material for the maintenance of the animal heat. Life cannot be long supported except on a diet in which the elements of nutrition and the elements of respiration (or animal heat) bear a certain proportion. In milk these are combined in the proportion of one to two. In arrowroot, sago, and tapioca, the proportion is one to twenty-six, in wheat-flour one to seven. Thus the child fed altogether on farinaceous food is actually starved to death, for it is forced to supply from its own tissues the nitrogenous elements essential to the maintenance of life. This is a frequent cause of that wasting and emaciation (called *atrophy*) from which so many children suffer—a condition accompanied by, or resulting in, diarrhœa or dysentery, and not unfrequently followed by convulsions, or by the state known as *spurious hydrocephalus*.

From the above it is evident that a child should not be fed on other food than milk until some indication appears of the development of the digestive organs. The first sign of such changes is the process of teething. As a general rule, until the first teeth appear, or about the sixth or seventh month, no other food than milk should be allowed. After this period some kind of farinaceous food may be given cautiously, in small quantities, and at first only once in the day. This may be either 'tops and bottoms,' or corn flour, or rusks, Robb's biscuits, or sago, arrowroot, prepared barley, or soojee—sometimes one, sometimes another of the foods named agreeing best with the child. It will also be advisable to add not only the necessary quantity of sugar, but also a grain or two of salt to each meal. Animal food should not be given until two of the grinders or back teeth have appeared. To feed a child with animal food before teeth proper for its mastication are cut, shows a disregard to the indications of nature, almost certainly followed by disordered bowels, diarrhœa, or other disagreeable results. For the first animal food, nothing is better than beef tea in which sago has been boiled. Gradually the child may be accustomed to take chicken or mutton broth, fine mince and eggs, and rice and dhall. Potatoes should be avoided for some time, as, unless very soft and mealy, lumps may be swallowed, which will certainly irritate the bowels.

Lastly, over-feeding must be guarded against. If the child's stomach is overloaded, it will certainly produce flatus, hiccup, indigestion, vomiting, diarrhœa. An infant under one month old will consume about two and a half pounds avoir. *per diem*, or from two to five ounces at each meal.

Before leaving the subjects of suckling and feeding infants, it will be desirable to mention the symptoms which indicate that the mother or nurse is becoming exhausted by the drain on the system, caused by the secretion of the milk. The first signs of this approaching malady are a dragging sensation in the back when the child is at the breast, and an exhausted feeling, often described as a 'sinking at the pit of the stomach,' afterwards. This is followed by loss of appetite, constipation, or diarrhœa, sleeplessness, and pain in the left side. There is often pain in the head, or throbbing of the temples, with giddiness and depression of spirits, and perhaps palpitation of the heart. A short dry cough is also not unfrequently experienced, and the monthly discharge may reappear, or may be irregular or excessive, with constant leucorrhœa or 'whites.' In extreme cases, the countenance grows pale and sallow, the body wastes, and there may be night perspirations and swelling of the ankles. When such symptoms appear, it is useless attempting to support the strength by more generous diet, by ale, porter, or stimulants, as is often tried. The woman should cease suckling, otherwise Nature will take the case into her own hands, and the secretion of milk will stop—not, however, until the constitution is probably permanently, or at least seriously, impaired by the persistent drain which, in spite of the warnings afforded, has been maintained; an impairment for which many females have been ultimately obliged to seek change of climate.

With regard to the weaning of children, no general rule can be laid down. The propriety or otherwise of weaning a child in India, must be considered with reference both to the condition of the child, and of the mother or nurse. Speaking generally, weaning should not be commenced until after the child has attained the age of twelve months, and then only provided the child is strong and healthy. If the child is feeble, and not in good health, suckling should be continued longer, or until the child has cut at least twelve teeth. When weaning is determined on, it should be a gradual process, and should be begun at night, and not when a tooth is irritating. The better way is to separate the child, and if it cries, it may be soothed with some cold water or the bottle. It will probably, however, get very little sleep; but by the second night, if the mother has not yielded, half the work will have been done. The third night the child will probably sleep the whole time, or it will be satisfied with a drink or two of water. If the attempt at weaning is made by day, the fatigue of the mother will be likely to render her so sleepy at night that she will probably yield, and thus time and trouble will be uselessly expended. Too mixed diet should not be given after weaning, various articles being each tried singly in succession for a few days, in order to ascertain which is most suitable for digestion.

The dispersion of the mother's milk may be much assisted by saline aperients (Recipes 2, 4, 6), by rubbing the breasts gently with soap liniment, and by abstinence from much fluid or drinks. Drawing the breasts with a pump, or otherwise, is not recommended, as it favours the continued secrètion of milk.

As confinements not unfrequently take place in India when neither medical attendant nor nurse is present, the following observations on the course to be adopted in such emergencies as regards the child are now added.* As soon as the child is born, the first care should be to allow free egress of air to the child's mouth. Any froth or fluid hanging about the child's mouth should be wiped away, and the head placed in such a position that it may not be covered with bed-clothing or other substance. Then, provided the child cries (which it probably will do), the cord should be tied and cut, about three inches above the navel. This little operation is best effected as follows. Two ligatures should be tied rather tightly round the cord, one at the distance of two and a half inches above the child's navel, the other rather more than three inches above the navel. Then the cord should be divided, *between the two ligatures*, with a rather blunt pair of scissors. The ligatures or strings used should be previously prepared, and should consist of eight or ten threads each, loosely rolled into one string. For this purpose any common sewing *thread* will do very well, but sewing *cotton* would not be strong enough; and tape, as sometimes used, being more likely to slip, is not recommended.

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* For the treatment of the mother, refer to article LABOUR, p. 459.

If the child is born apparently dead, and does not cry, it may present either of the following appearances: 1stly. The face may appear flushed and livid, the skin red, and the cord tense and pulsating. In this condition the first thing to be done is to tie one ligature as soon as possible round the cord upwards of three inches from the navel. Then place the second ligature round the cord an inch or so below, but do not draw the knot tight. Now divide the cord between the ligature tied tight above and the ligature laid loosely below. The latter is not to be tied tightly until a teaspoonful or more of blood has escaped. This loss of blood will often be followed by efforts at breathing, which will soon become established, the child beginning to cry. If respiration does not take place, the child's body should be sprinkled with cold water, the limbs should be gently rubbed, and artificial respiration should be tried. (For artificial respiration, *vide* DROWNING.) 2ndly. The face of the child may be pale, the features collapsed, the lips blue, the jaw fallen, the limbs cold, while no pulsation is felt in the cord. In this condition, before the cord is tied and divided, cold water should be sprinkled on the breast; the back of the mouth should be cleared, by the finger covered with a handkerchief, from any sticky mucus or fluid; the face and buttocks may be tapped with the corner of a wet cloth;

the nose and back of the mouth may be tickled with a feather; and if none of these means excite breathing, artificial respiration should be tried. While all this is going on care must be taken that the body of the child is so placed that there shall be no impediment to the passage or circulation of blood through the cord. While artificial respiration is being tried, a hot bath should be prepared (temperature 97° Fahr.), in which, after the cord is cut and tied, the child may be immersed, and artificial respiration may be again tried while the child is in the bath. Infants, to all appearance dead, have often been recovered, even after upwards of two hours spent in such endeavours.

As soon as the infant is free from the mother, or, in other words, when after the division of the navel-string it commences an independent existence, it should be enveloped in a thin flannel wrapper, and (if in the cold weather and the northern parts of India) taken towards the fire. In a few minutes, or as soon as a warm bath can be conveniently prepared, the body of the infant should be immersed in warm water, of the temperature of 97° Fahr., and the greasy substance adhering to every new-born infant should be washed off. This greasy substance will be found more especially adhering to the armpits, groins, eyebrows, or other places, where the skin is loose. Glycerine or Castile soap and a very soft sponge will ordinarily suffice for this purpose, but care must be taken that the soap does not get into the eyes, which may excite ophthalmia. In some parts of Europe fresh butter and lard are used, in order to dissolve this deposit on the body of a newly-born infant. But any such application is unnecessary. The deposit which is not washed off at first will separate at future washings, and its adhering for a few days will do no harm. The infant should not be permitted to remain in the bath more than three or four minutes, whether the surface of the body is free or not from the greasy substance referred to. It should be recollected when washing the infant, that its bones are soft, and unable to sustain the weight of the body. It should, therefore, during the washing process, be allowed to rest on the bath, and not be held up by one arm, as is sometimes the case. After the washing it should be put on a soft pillow on the nurse's knees, and be gently dried with soft warm towels, and then enveloped in a thin flannel wrapper. Some medical practitioners advise powdering the body of the child after washing, but as the only benefit from the use of the violet powder is to secure perfect dryness of the skin, this procedure, provided due care be taken, may be dispensed with.

Having properly washed and dried the new-born infant, the navel-string now demands attention. If not already done, the string or ligature with which the navel-cord is tied should be cut short off near the knot. Then a piece of old soft linen rag should be doubled, and cut in a circular shape, four or five inches in diameter. In the centre of this a circular hole should be made, through which the tied cord is to be drawn. The latter should be then folded in the cloth, and the mass laid on the belly of the child, in which position it should be secured by a belly-band. The latter should be of thin flannel, about five inches broad, and long enough to go twice round the body. But it should not be applied too tightly, as it would then interfere with the breathing of the infant. After the bandage is applied two or three fingers should pass easily beneath it; the object being, not to impede breathing or digestion, but simply to maintain a slight pressure over the navel, which at this period is one of the weakest parts of the infant's body. It may be well to mention, that in order to provide against protrusion of the navel (*vide* p. 440), sometimes happening to infants, the bandage should be used for three or four months after birth, and even then not be left off, should there be any prominence or protrusion of the part. The rag, as mentioned above, should be removed, and new rag applied daily. It will be advisable to smear a little salad-oil over the cloth, in order to prevent any sticking of the end of the navel-string to the cloth, which might lead to injury or forcible removal of the string. In four or five days or a week the end of the navel-string will come off with the rag, leaving a depressed sore below, which ordinarily quickly heals. But if the string does not separate in this time, it should not be pulled or otherwise interfered with, but allowed to drop off by the natural process of separation.

With regard to the clothing of infants, the desiderata are that it should be light, warm, and loose. Thin flannel fulfils these requirements better than any other texture. Sleeves and armholes should be so made, that twisting the child's arms into unnatural positions may not be necessitated. Infants are frequently caused pain, if not more seriously injured, by their tender arms being thrust through narrow apertures of clothing, and from their skin being fretted by rough and tight garments, or by the incautious use of pins.

As soon as an infant is dressed and the navel-string properly adjusted, many nurses are in the habit of dosing it with castor-oil, with salad-oil, with butter and sugar, with treacle, or some other substance calculated to act on the infant's bowels. But this is very seldom necessary, and may be injurious. The infant should be allowed to sleep for a time (which it most usually will do), the eyes being protected from any strong light, and the body from draughts or cold. In five or six hours the infant may be put to the breast, which will encourage the flow of milk. The milk first secreted, as before mentioned, contains some natural aperient qualities, and it is right the child should take this milk instead of the dosing above referred to. It is only in cases where the first milk of the parent is not obtained owing to the child being put to a wet-nurse, or in cases of premature birth, when no milk is secreted, or from the first milk failing to be sufficiently purgative, that the administration of any medicine is desirable. Then half a teaspoonful of castor-oil is the best aperient. The lower bowels of a new-born infant are loaded with a dark, black secretion called *meconium*, which, unless removed (by the natural purgative properties of the first milk, or otherwise by medicine), may give rise to irritation, pain, and diarrhœa. But in the great majority of instances the first milk is quite sufficient to effect this.

Neither is the practice of feeding an infant immediately after birth to be approved. Nor should it be put very frequently to the breast (*vide* p. 464). An infant requires little, if any, nourishment until ten or twelve hours after birth. There is in most cases, even before this early period, a sufficient secretion from the mother's breasts to serve the scanty wants of the child. Though small in quantity and poor in quality, such secretion is, combined with the material already in the child's bowels at birth, enough for nutrition. In second confinements the mother will frequently supply milk within twelve hours. If not, or in first confinements, when the milk is later in coming, the infant should be fed every three hours, either with asses' milk and water, or with goats' or cows' milk and water, proportioned and sweetened according to the directions given on this subject (*vide* p. 555). After the mother's milk appears, the infant should obtain nourishment from this source alone. During the first month it will be advisable to suckle the infant every two hours by day, and every three hours by night, rather than overloading the child's stomach at long intervals. Frequent suckling during the first month is also better for the mother's breasts, as it maintains them constantly relieved from secreted milk; the distension of the breast from retained milk being a fertile source of inflammation and abscess of the part. After the first month the intervals between suckling should be gradually extended to four hours. By care the habit of not suckling from 10 P.M. to 5 A.M.

may also be acquired, to the great comfort of the mother. It is well to recollect that an infant should be applied alternately to each breast. Sometimes a child, from some inexplicable reason, prefers one breast, and the mother, to avoid a little contention, concedes the point; or, in consequence of a cracked or sore nipple, the mother puts the child more to one breast than the other, the result being distension by retained milk, and often abscess.

After the birth of a healthy infant various circumstances may give rise to uneasiness. From pressure during birth the shape of the head may be altered, the appearance of the face may be disfigured, or black or bluish coloured swelling may be raised on the scalp. These appearances, however, need not excite apprehension. The head or face will gradually assume their natural shape, and swellings about the scalp seldom require more than bathing daily with a little milk and water. It sometimes happens that the infant makes no water during the first twenty-four hours. When this is the case, and the infant appears in pain, crying and drawing up the legs, a warm bath, or fomentation over the lower parts of the bowels, will prove successful. In some infants a day or two after birth the breasts are found swollen, and a whitish fluid resembling milk may be observed on the surface of the infant's nipple. The swollen part should not be squeezed, as some nurses are in the habit of doing, but it should be frequently washed clean, after which a little salad-oil, or, if much inflamed and reddened, a bread poultice, are the best applications. Other infants sometimes suffer a few days after birth from an affection of the eyes. The eyelids stick together after sleep, the edges are red, the eyes are closed when exposed to light, the lids swell, and matter is discharged. This affection is often caused by exposure of the infant to too strong a light, as from a blazing fire, which should be guarded against. The best method of treating this condition is by perfect cleanliness, by bathing the eyes with milk and water, and by keeping the child in a darkened room. Bleeding from the navel-string is another accident to which new-born infants are liable. This may arise from the string used being carelessly tied, or from tapes being used, which are liable to slip. The proper treatment of this variety of bleeding is placing another ligature below the first. Or the bleeding may come on, when, after seven or eight days, the navel-string separates. To stop this bleeding pressure should be applied by placing the finger on the part for a few minutes. If this does not succeed, a solution of alum (20 grains to an ounce of water) may be applied with a camel-hair brush, or the tincture of iron in similar manner; none of which means stopping the flow, the part may be touched lightly with nitrate of silver. In some cases, either after bleeding, or when the end of the cord drops off without bleeding, the navel remains red, prominent, and moist, presenting granulations or 'proud flesh.' This condition is also generally easily cured by the use of alum wash or nitrate of silver, and by the application of simple dressing under the bandage. Jaundice is another malady to which new-born children are liable. About the end of the first week the body may become yellow, the urine of the same colour, and the stools may be white. As a general rule, no treatment is required for the jaundice of infants, but if the bowels are confined it will be advisable to give half a teaspoonful of castor-oil. Lastly, some infants are born 'tongue-tied,' although such condition is not really so frequent as is popularly supposed. If the infant sucks and protrudes the tongue at all over the lower lip, it is not *tongue-tied*, even although for some days it may not suck so vigorously as it should do. The state known as 'tongue-tied' depends on the fold of membrane (or *frænum*) beneath the tongue being a little too far forward, and the method of relief is the division of this structure to the extent of a quarter of an inch or less with a sharp pair of scissors. The snip with the scissors should be directed downwards towards the jaw, not upwards to the tongue, to avoid cutting a small blood-vessel passing through the part, and from which, when cut, a troublesome bleeding has proceeded. Thrush (*vide* p. 320) sometimes attacks infants, and may be frequently traced to improper feeding.

It may be useful here to mention that the cry of an infant is often very characteristic, or even distinctive, of the malady from which the child is suffering; and as infants cannot express their pains and ailments, an ear educated to distinguish between the different cadences of the child's voice should be an aim of every mother. Neither is the matter very difficult, after a little attention to the sounds. For examples: the infant's cry of passion is a furious one; the cry of sleepiness is a drowsy one; when roused from sleep there is generally a sobbing cry; a shrill cry denotes hunger; the cry of teething is fretful and intermittent; an infant with ear-ache will cry in short, piercing tones, putting the hand to the affected ear, and perhaps rolling the head; bowel complaint causes a straining cry, with drawing up of the legs; in bronchitis the cry is gruff and husky; in inflammation of the lungs it more resembles a moan; in croup the voice is hoarse, and the breathing sounds as if drawn through muslin; in inflammation of the brain the cry is often a piercing shriek, alternating with moaning.

When necessary to examine a child as to the existence of tenderness in the bowels, for instance, it is useful to bring the child suddenly before a bright light, as one of the apparently greatest pleasures of an infant consists in gazing at such an object. It almost always ceases to scream, and continues quiet while thus attracted. Seizing such an opportunity, the bowels may be examined by gentle pressure with the fingers. If the pressure causes the child to cry out, with at the same time frowns or contractions of the countenance, there will probably be some irritation or inflammatory condition affecting the bowels.

Lastly, a child should never be roused from sleep in order to give medicine. It may be safely asserted that sleep will always be more beneficial to a child than any kind of medicine. If a child, especially an infant, sleeps, it may be accepted as an indication of a mild form of disease or of a diminution of serious symptoms. With regard to the administration of medicine to children, if they are old enough appeal to their reason, for if children are deceived they will soon become suspicious, and future trouble will be entailed. If too young to be reasoned with, and children will not take medicine, they should be compelled. Let a refractory child be laid across the knees, the hands, *nose*, and feet being tightly held. Then by means of a medicine spoon, or other spoon, pour the dose into the mouth, and it must be swallowed. Medicine, however, should be made as palatable as possible for children, as giving nauseous doses excites and distresses a child, the passion thus aroused probably doing more harm than the medicine thus forcibly administered does good.

CHAPTER VI.

THE MANAGEMENT OF THE SICK ROOM.

1. *Temperature of the Sick Room.*—In a temperate climate, unless in some particular forms of disease, the temperature of the sick room should range between 65° and 70° Fahr. But in India it will frequently be much higher, and the use of punkahs, or even of tatties, although often undesirable, cannot always be dispensed with. Whatever the temperature of the sick room may be, every care should be given to maintain the temperature *equable*; and this is especially necessary when dealing with affections of the lungs or respiratory passages. During the spring and autumnal seasons in the more northerly parts of India, there is a very great difference of temperature between the night and day, this change being particularly apparent in the early morning; and it is at this period that extraordinary care must be taken to prevent a patient being chilled. Shutting doors and windows, lighting a fire or a lamp, the use of additional wrappings, are the means which will commend themselves to all as the protection against 'chill.' In Chap. IV., p. 528, cold or chill is mentioned as a fertile source of disease in India, and the liability to take cold, and the frequency with which it may be taken in a hot climate, are insisted upon. As such is the case with persons in health, the sick must be doubly susceptible to changes of temperature, and therefore require extraordinary care.

2. *Ventilation of the Sick Room.*—In twenty-four hours the breathing of an ordinary-sized person vitiates about 1,800 cubic feet of air to the extent of one part in one thousand of

carbonic acid gas, and when air is vitiated to a greater degree it becomes injurious. But when persons are sick, and especially when the sickness is a contagious disorder (as small-pox, scarlet fever, measles, diphtheria, typhus fever, erysipelas, &c.), minute particles emanate from the lungs and skin, which further tend to poison the atmosphere, and which floating about, may be easily carried to other localities, or be breathed into the lungs of other people, and thus set up fresh centres of disease. The more concentrated these particles or germs are, the greater is the injurious influence exerted. Hence the very great importance of the ventilation of the sick chamber, the inmates, both sick and attendants, demanding a much larger supply of fresh air than when healthy, or than when not ministering to the wants of illness. If a healthy person requires nearly 2,000 cubic feet of breathing space, the sick person should have double that amount, and the air should be changed twice as frequently. Therefore, in the first place, when there is any choice, the sick chamber should be as capacious as possible, for the more air there is to breathe the less frequently will it require to be renewed. In ordinary Indian bungalows ventilation (by which is meant the entrance of fresh air into the apartment and the exit of foul air from the room) is only to be obtained through the doors and windows, and in many parts of the country at some seasons of the year the hot winds forbid opening doors and windows during the day. Much, however, may be done by the arrangement of doors and windows in different parts of the house, so that fresh air may enter the chamber, and for this result nearly all houses would require different arrangements. The mornings and evenings will afford opportunity for more thoroughly ventilating the sick room, and if practicable the sick person should leave the room during the time it is thoroughly exposed to the open air. If this is not possible, with a little care, ventilation may be effected without exposing the patent to any draught, or to any injurious change of temperature; the use of extra wrappings and of screens being the means which will occur to all. A fire-place on one side, and a window slightly open at the top on the other, is a very good means of ventilation. But even this simple method is not always available in an Indian bungalow; and it may be said other methods of artificial ventilation are never available. Therefore the emanations from the patient's lungs and body, and the otherwise vitiated air of the sick room, must ordinarily be got rid of through the doors and windows. Whenever possible, one on each side the room should be open, or partially open, and those windows or doors should be used which, with reference to the prevailing breeze, must admit of fresh air *from outside* entering the sick room, and of vitiated air from the latter passing into the external atmosphere, and *not* into other parts of the house. Of course, when opposite windows or doors are thus made to serve the purpose of ventilators, the sick person should not be placed in the current of air or draught thus created. The purity of a sick room may be judged of by noticing whether there is any perceptible odour on entering the room from the open air, which indicates that ventilation is imperfect. A still better test is placing a wide-mouthed bottle in the room for some hours, and then pouring a little clear lime-water (*vide* p. 481) into it, and shaking it. If the air is impure, the carbonic acid will cause the fluid to become more or less milky in appearance.

3. *Appearance of the Sick Room.*—The colour of the sick chamber is often of importance, especially in cases when the brain is in any way implicated. The whitewashed walls of an Indian bungalow are often anything but conducive to the repose and quiet demanded by a patient. The best colour for the sick room is a uniform neutral tint, such as light green, buff, or slate colour. The windows should be so arranged as to admit, except in some diseases of the eye and brain, abundance of light, or at least as much as is agreeable

to the patient. It should be recollected that light is a normal stimulus to the body, without the aid of which many maladies are not so readily treated. Even in those diseases in which the light requires to be tempered, it should seldom be shut out altogether. The great mistake is often made in India of shutting out the light too much, not only from the sick room, but also from dwelling-houses generally; and this is referred to at p. 269 as a probable predisposing cause of scurvy. The windows should not be surrounded by woollen curtains or tapestry, a plain green shade, blind, or 'chick' tempering the light sufficiently, and, if necessary, cutting off outside objects from the patient's view. Similarly, all hangings and curtains should be avoided, as they may become harbourers of the germs of disease. For the same reason carpets should as much as possible be dispensed with, although it is advisable to have something of the kind to deaden the noise where the most traffic occurs. But each morning carpets or mats used should be quietly taken out, and they should be thoroughly shaken and aired. The floor should also be wiped with a damp cloth. Under such a system the 'chunam' floor usually found in Indian bungalows, if unbroken, can never become impure. But if a chunam floor is broken up, it will absorb not only fluid and moisture, but probably also disease germs which may come in contact with it. It is therefore advisable to have any holes in the chunam floor of a sick chamber repaired immediately with lime cement. A wooden floor, especially if not polished, requires even greater care and cleanliness than the chunam floor. The porous brick flooring, and the 'rammed earth' floor sometimes found in bungalows, are in every way objectionable, and can scarcely be kept clean. The process of *leeping* or smearing an earthen floor with wet cow-dung, of which the Natives are so fond, is, from concealing dirt and the attendant damp, less desirable than simply sweeping. If, as sometimes happens, a patient with a contagious disorder must be treated on an earthen floor, it will be advisable to slightly scrape the floor every day.

The smaller the amount of furniture in the sick room, the more air there will be for the patient to breathe, and therefore massive articles of furniture not required for use had better be removed. Cushions and covers should also be as much as possible dispensed with. As regards beds, those having iron frames are the best for use, as being less liable to harbour either the germs of disease or insects.

Lastly, the appearance of the sick room should be made as bright and cheerful as possible by the use of flowers, pictures, books, or other things pleasant to the patient. Such things should not, however, be intruded or pressed on his attention, and if they create disgust, or excitement, or feverishness, they should be quietly removed.

4. *Cleanliness of the Sick Room.*—This can never be thorough when carpets are nailed down, so that they cannot be removed to be shaken and aired. In all febrile diseases the bed linen *under* the patient should be changed at least once a day. The upper sheet, if not soiled, may be used next day after airing as the under one. The pillow-cases should also be changed daily. Patients suffering from small-pox, scarlet fever, erysipelas, typhoid fever, or other contagious diseases, should also have the whole of their bedding changed every day. When a patient's bed requires to be changed, this, in ordinary cases, may be accomplished by bringing another bed alongside, and sliding the patient from one to the other, or lifting him in a sheet. But in severe cases of any kind, when it is of importance that the patient should not be disturbed in his posture, moving him may be safely performed by improvising a *stretcher*. All that is required is a strong sheet or blanket as long as the patient, and two wooden rods (as, *e.g.*, rake-handles) of the same length as the sheet, and an inch or more in diameter. To move a person easily, four assistants are required, who

are to stand two on each side of the sheet, and *exactly* opposite to each other. One of the wooden poles is to be placed close to the edge of the sheet, which is to be rolled very tightly over it, up to perhaps within five or six inches of the body, the great thing being to draw the sheet smoothly out from the patient while rolling up the stick inside it. The opposite rod is to be adjusted in the same manner. When everything is ready, the assistants grasp the rods firmly with their hands placed about two feet apart, and as nearly as possible directly opposite to each other, so that as they lift, and at the same time draw against each other, the sheet will be supported at exactly opposite points. The assistants are to first drag strongly against each other and then lift, and keep constantly pulling against each other as they move along. If the patient thus moved has a fracture, unless the precaution is taken of directing one of the assistants to grasp the rod exactly opposite the hands of the assistant on the opposite side, the bones may be disturbed during the act of moving.

But cleanliness of the room and bed linen alone is not all that is necessary. Closets or cupboards attached to the room should not be made the repository of unnecessary articles, and, above all, it should be recollected that used clothing or bed linen should never be put in such places. Such articles should be removed immediately, and they should be disinfected previously to the usual washing by immersions in carbolic disinfecting fluid, or by boiling, as recommended at p. 504. In all contagious disorders the cups, glasses, and other things used by the patient should also be washed in some disinfecting fluid and afterwards in the usual manner. For the disinfection of table articles Condy's fluid, or solution of permanganate of potash (p. 502), is preferable to carbolic acid wash, as the latter may possibly leave an unpleasant flavour. Rags should be used instead of pocket-handkerchiefs, and the rags should be taken away and burnt. In maladies causing the patient to expectorate, as in small-pox, diphtheria, scarlatina, &c., the expectoration should be received in a utensil charged with some disinfecting agent, as carbolic acid, Condy's fluid, or disinfecting powder. Lastly, the attendants should frequently wash in carbolic disinfecting fluid.

5. *Disposal of the Dejections from the Sick Room.*—Unless required for inspection, the dejections should be received in a utensil charged with some disinfecting agent. This may be about an ounce of sulphate of iron (the *herakusees* of the bazaars), or a little carbolic disinfecting powder as sold by all chemists, or a solution of carbolic acid of the strength of three tablespoonfuls of the liquid acid to a gallon of water, or Condy's disinfecting fluid. The dejections thus disinfected should be immediately taken away and buried. When the dejections are to be preserved for inspection, they should be put away in some outhouse, and not be placed in a room or bath room adjoining the sick chamber.

Great care should be taken that urine does not come into contact with the chunam floor of the bath room usually found in Indian bungalows. The absorption of fluid and moisture by a broken chunam floor has been already referred to under the heading of 'Cleanliness.' But there is an additional reason to mere cleanliness why urine should not be permitted to come in contact with chunam. If this occurs chemical action takes place, and smelling ammoniacal odours are emitted. This will occur even when the chunam floor is not broken up, but much more quickly and powerfully when holes on the surface exist, through which the urine may rapidly soak to the lime below the polished surface.

6. *Deodorisation and Disinfection of the Sick Room.*—Substances properly called deodorants chiefly act by overpowering one odour by the substitution of another. Agents properly termed disinfectants are supposed to destroy noxious emanations; but there are some agents, as chlorine gas,

which act in both ways. Deodorants and disinfectants should only be used as adjuvants, and should not take the place of ventilation and cleanliness. Often, indeed, they have masked the neglect of these essentials. Ventilation and cleanliness taking the first place, the following agents may be used:—Bags or baskets containing a little charcoal, which has the property of absorbing sewage gases, especially sulphuretted hydrogen, may be hung in the room. Quick lime, which absorbs carbonic acid, may also be used, placed in a saucer. Tar fumes, vinegar, and acetic acid and ammonia, are old deodorising remedies, but they are not very effectual. Chlorine gas is one of the best disinfectants, but if present in too large quantity it is irritating to the eyes and air passages. To produce chlorine gas in small quantities chloride of lime may be placed in a saucer and moistened with a little water; the gas is then slowly given off. If a quicker effect is desired, a little weak sulphuric acid should be added, which will liberate chlorine more rapidly. Carbolic acid is also much used. The acid may be placed in saucers about the room. Cloths damped in carbolic acid solution, or in solution of nitrate of lead, or in Condy's fluid, may also be hung up about the room. *Vide* pp. 503, 505.

7. *Dietetics of the Sick Room.*—Although we now know better than to starve persons simply because they are sick, yet the sick cannot take the same food as the healthy. Thus, when a person has fever and a furred tongue (the majority of diseases being thus accompanied), the appetite for solid food is gone, and therefore all nourishment must be given in a liquid form. Milk is an article of diet which all may take, as far as disease is concerned, in almost any and every condition. Cows' milk is probably best suited for invalids. (For the composition of milk *vide* p. 551.) If good fresh milk cannot be obtained, preserved milk sold in tins may be used. Cold milk is sometimes more agreeable than warm. It may require the addition of lime-water when there is marked

acidity of the stomach present. A little infusion of gentian also is sometimes useful in stimulating the stomach; and it may be necessary to give the milk in small quantities, repeated often, and in this way, when ice-cold, it may be administered to irritable stomachs with the best effect. Contrary to the teaching of our fathers, we now believe that cold water, and even ice-cold water, is a most beneficial drink, which patients may take as often as they wish, providing too much be not taken at any one time. Tea also is a wholesome beverage, is often comforting to sick people, and may be given without harm if sufficiently diluted with milk. When made only just strong enough to give a flavour, and well supplied with milk, and perhaps a little sugar, it gives the patient a trifle of nourishment in a very palatable form. For other foods the ADDENDUM (p. 581), containing dietetic preparations for the invalid, is referred to.

When the appetite returns, and a desire for solid food is felt, much care should be taken for some days. A little fish or mutton with bread and dry toast will generally be the best diet. Vegetables are not recommended. Jelly, blancmange, light puddings made of tapioca, sago, or rice, may be given, and an egg for breakfast, or in the evening. As a rule no stimulants need be given until the stage of convalescence, when two or three glasses of sherry, or good claret, may be taken daily. In some instances, when disease assumes a grave form, with tendency to sinking, stimulants must be administered freely; but no general rules can be laid down to suit individual cases. When food is given to either the sick or convalescent only a little should be brought at a time, and that in a tempting form, and the patient should not be too much pressed to take food, especially when it is apparent that he has no desire for it. A large basin of beef tea or bread and milk is often refused, when a small quantity offered in a tempting manner would be taken.

8. *Quiet in the Sick Room.*—Quiet is always necessary.

None but the attendants required should be admitted into the sick chamber. A patient is often unwilling to talk, and excitement always does harm. Whispering, walking on tiptoe with the semblance of great care, the rustling of garments, and all unnecessary noise both inside and outside the house, should also be avoided. Lastly, the patient's strength should be saved as much as possible, and he should not be permitted to excite himself, or to exert himself unnecessarily.

9. *Aspect of the Sick Room.*—It is not always that the aspect can be chosen, but when this is practicable it will, in India, be most frequently advisable to take the coolest room. Unless in the cold weather of Northern India, when cold north-east winds often prevail, the room which admits the greatest amount of perflation by the prevailing breeze, and the minimum of sunshine passing directly on it, will be the apartment best suited for an invalid.

ADDENDUM.

DIETETIC PREPARATIONS FOR THE INVALID.

Panada.—Take the white part of the breast and wings of a boiled or roasted chicken, and pound in a mortar with an equal quantity of stale bread. Add the water in which the chicken has been boiled, or beef tea, until the whole forms a fluid paste; then boil for ten minutes, stirring all the time.

The under side of cold sirloin of roasted beef, or cold roasted leg of mutton, may be used instead of chicken.

Beef Tea.—Mince finely one pound of lean beef, place it in a preserve jar, and pour upon it one pint of cold water. Stir, and allow it to stand for about one hour. Then place the jar with its contents in a saucepan of water, let it simmer gently over the fire for an hour, and strain. The liquid which runs through the strainer contains a quantity of fine sediment, which is to be drunk with the liquid, after flavouring with salt at pleasure.

Beef tea prepared as above is very nutritive, and possesses an agreeable meaty flavour. Beef tea should not be subjected to prolonged or violent boiling, as it then becomes a soup or broth, from the most nutritious portion (the gelatine and albuminous material) being, during the boiling process, incorporated with the solid rejected residue. The liquid thus loses in flavour and nutritive power.

Savoury Beef Tea.—Mince finely three pounds of lean beef; and add one onion, half a dozen cloves, one small carrot, a little celery seed or essence, a little thyme and parsley, half a teacupful of mushroom ketchup, three pints of water, and salt and pepper according to taste. Prepare as directed for beef tea.

BEEF EXTRACT.—Cut up a pound of the best beef into small pieces, and put them into a good-sized pickle-bottle with a wide mouth. This is corked loosely and placed in a kettle of water and kept boiling for two hours. If the bottle be now removed, it will be found to contain a considerable quantity of fluid, which may be poured off, the beef also being subjected to slight pressure to make it yield more. In this fluid we have a highly concentrated article of nourishment, which may be given, after seasoning, either pure or diluted, according to the state of the stomach.

CHICKEN, VEAL, OR MUTTON TEA may be prepared in the same manner as beef tea.

BROTHS are made by boiling the articles as above for two hours, and straining through a wide sieve. Pearl barley, rice, vermicelli, or semolina may be added. The bones of the meat may also be broken up, and used in the preparation of broth.

FLOUR AND MILK.—Fill a small basin with flour, tie a cloth over the mouth, and boil it slowly in a saucepan of water for eight or ten hours. The inside portion of the flour becomes incorporated into a hard mass. After removing the outer sodden part, add one grated tablespoonful of the flour to a pint of milk and boil. This preparation is often advisable in dysentery and diarrhœa.

MILK AND SUET.—Boil one ounce of finely chopped suet with a quarter of a pint of water for ten minutes, and press through flannel. Add a drachm of bruised cinnamon, one ounce of sugar, and three quarters of a pint of milk. Boil again for ten minutes and strain. A wine-glassful or more may be taken at a time. It is nutritive and fattening, and if there is no diarrhœa is useful in the atrophy or emaciation of children.

BREAD JELLY OR 'PAP.'—Steep stale bread in boiling water, and pass through a fine sieve while hot. This may be flavoured with sugar, or mixed with milk. It is suitable for children, and invalids with weak stomach.

OATMEAL PORRIDGE.—Mix a large tablespoonful of oatmeal with two tablespoonfuls of cold water. Stir well and pour into a pint of boiling water in a saucepan. Boil and stir well for ten minutes, and flavour with salt or sugar as preferred. Milk may be used instead of water. If the boiling is continued for half an hour, the porridge then turned out into a soup plate, and cold milk poured over it, it will become semi-solid. Oatmeal porridge is beneficial when constipation exists, but should not be used if there is tendency to diarrhœa. It is a nourishing food, but sometimes causes acidity or water brash.

OATMEAL GRUEL.—Mix thoroughly but gradually one tablespoonful of groats with two of cold water, and add one pint of boiling water, stirring all the while. Boil for ten minutes, continuing the stirring. Sweeten with sugar, and add, if desired, a little sherry or brandy. Milk may be used instead of water. This is also a nourishing food, containing more nitrogenous matter than preparations of arrowroot.

BARLEY WATER.—Wash two ounces of pearl barley well with cold water, and reject the washings. Then boil in a pint and a half of water for twenty minutes in a covered vessel, and strain. The liquid may be sweetened and flavoured with thinly-cut lemon peel, which may be introduced during the boiling.

RICE WATER.—Well wash one ounce of rice with cold water. Then steep the rice for three hours in a quart of water kept at a tepid heat, afterwards boil slowly for one hour and strain. It may be sweetened and flavoured as barley water. A useful drink in dysentery and diarrhœa.

LINSEED TEA.—Place one ounce of bruised linseed and two drachms of bruised liquorice root into a jug, and add one pint of boiling water. Let it stand lightly covered for three hours near a fire. Strain the liquid, which may be flavoured as mentioned for barley-water. Useful as a drink in urinary affections.

WHITE-WINE WHEY, OR 'POSSET.'—Boil half a pint of milk in a saucepan, and while it is boiling add a wine-glassful of sherry. Strain and sweeten as agreeable. A useful drink in colds and mild febrile attacks.

TAMARIND WHEY.—Boil a pint of milk, and while it is boiling add two tablespoonfuls of tamarind. Strain and sweeten to taste. A cooling and slightly laxative drink.

LEMONADE.—Pare the rind from a lemon thinly, and cut the lemon into slices. Put the peel and sliced lemon into a jug, with one ounce of white sugar, and pour over them one pint of boiling water. Cover the lid closely, and let it stand till cold. Then strain and pour off the liquid.

BREAD.—Obtaining good bread is very often a difficulty in India. Soda, and baking powders which contain an alkali, are objectionable, because they neutralise the gastric juice. So is very often the *mussallah* used by Native bakers instead of yeast, and which is not unfrequently sour. To procure yeast or barm is the difficulty in making good bread, which may be overcome, at least in the cooler weather, as follows :—Put half a breakfast-cupful of good hops into a saucepan with two quarts of cold water, and boil slowly for some hours until it is reduced to little more than one quart. Let this decoction get cool, then add half a breakfast-cupful of sugar, stir till the sugar is dissolved, then bottle and cork. Let the bottle stand in a cool place for three days, when yeast will be formed.

To make bread, take six pounds of flour, three tablespoonfuls of yeast, and one quart of lukewarm water. Put the yeast and water into the centre of the flour, mix, and cover with a cloth for five or six hours till it rises. Then add as much tepid water as will make the whole into dough, also a dessert-spoonful of salt, and knead properly. Cover, and let the mass stand till it ferments, which is known by its cracking on the top. Then divide into loaves and bake. Double the proportions of articles named will make better bread.

INDEX.

ABD

ABDOMINAL compress, *vide* Dyspepsia, 136
Abdominal bandage, after confinement, 462
Abscess, 36
— acute, 37
— chronic, 38
— of the anus, 40, 181
— — — breast, 40, 69, 566
— — — perinæum, 40, 297
— — — liver, 224
— lancet, description and use of the, 348
Absorbents, *vide* Enlarged Glands, 185
Accidents, immediate treatment of, 354
Acid, carbolic, 503, 504
Acidity, 41
Acne, or copper nose, 41, 283
Aconite, poisoning by, 433
Ægle marmelos, 2, 20
Ague, 41, 163
— quotidian, 163
— tertian, 163
— quartan, 163
— masked, 163, 175
— irregular, 163
Albuminuria, 71
Alcohol, 536
Alcoholic drinks, use of, 523, 536
Alkaline effervescing prescriptions, 485
Aloes, glacial extract of, 475
Alterative medicines, 480
Alum, 18
Amenorrhœa, 331
Ammonia, hydrochlorate of, 19
— aromatic spirits of, 8
Anar, or pomegranate, 24

BAE

Anasarca, 124
— after scarlet fever, 125, 264
Anæmia, 42
Aneurism, 43
Angina Pectoris, 43
Ankles, weak, *vide* Clubfoot, 90
Antidotes for poison, 437
Aperient medicines, 472
Aphonia, 43
Aphthæ, 43, 311, 320
Apoplexy, 43
— from heat, *vide* Sunstroke, 301
Apothecaries' weight, 6
— measure, 7
Appetite, loss of, a symptom of disease, 33
Ardent fever, 154
Argel, 25
Arsenical solution, 478
Arsenic, effects of, on the system, 478
— poisoning by, 176, 428
Arteries, course of the, 356
— bleeding from, 358
Artificial feeding of children, 555
— respiration, 391, 426, 562
Ascites, 125, 264
Asphyxia heat, 50
Assafœtida, 20
Asthma, 48
— hay, 48
Astringent medicines, 486
Atrophy, 50
Atropine, use of, 150, 449
Aymah or Dhai, rules for choosing a, 552

BAEL fruit, use of, 20
— decoction of, 20

Bael, syrup of, 20
Bael geerie, 20
Bandages, description and use of, 350
Bath, hot, 500
— medicated, 501
— temperature of cold, hot, and warm, 541
— cold, when to be avoided, 527, 540
— room water, disposal of, 527
Bathing, 540
Bear-bites and scratches, 450
Bed-sores, 52
Bee stings, 456
Beef-tea, how to make, 581
— extract, how to make, 582
Beri-Beri, 53
Bhang, 435
Bilious attack, 54
Bistoury, or curved knife, use of the, 348
Blackheads, *vide* Acne, 283
Bladder, inflammation of the, 54
— — — — acute, 55
— — — — chronic, 55
— irritation of the, during pregnancy, 253
— stone in the, 56
Bleeding-lancet, description and use of the, 349
Bleeding or hæmorrhage, 358
— from arteries, how recognised, 358
— — veins, how recognised, 359
— — varicose veins, 252
— — the head or neck, 360
— — — arm, 360
— — — forearm, 361
— — the hand, 361
— — the thigh, 361
— — below the thigh, 362
— — the tongue, 449
— — — socket of a tooth, 365
— — — nose, 363
— — leech bites, 364
— from internal organs, 365
— before and after labour, 462, 468
Blistering tissue, 499
Blisters, 499
— from accident, 366
Blood-vessels, course of the, 355
— — bleeding from, 358
Blue pill, 483
Blunt knife, or spatula, description and use of the, 349
Blush, The, *vide* Skin Diseases, 142, 272
Body, protection of the surface of the, from heat, 511
Boils, 60
— Scinde, 61
— Gwalior, 61
— Delhi, 61
— Aden, 61
— Baghdad, 61
Bowels, inflammation of the, 56
— obstruction of the, 57, 94
— protrusion of the, 59
— protection of the, by the turban, 513
Brain fever, 64
Brain, inflammation of the, 63
— congestion of the, 63
— water on the, 64
— concussion of the, 373
— compression of the, 376
Bread, how to make, 584
Breasts, inflammation of the, 67
— abscess of the, 69
— irritable, 70
— sore nipples of the, 69
— cancer of the, 71
— drawing the, 68, 465
— irritation of the, during pregnancy, 252
Breathing, 30
Bright's disease, 71
Broken belly, or rupture, 438
Bromide of potassium, effects of, 484
Bronchitis, 71
— chronic, 73
— of children, 74
— during teething, 312
Brow ague, 77, 199, 239
Bruises, 366
Bubo, 77, 322
Bunion, 77, 394
— ulcers arising from injury of, 394
Burning of the feet, 78
Burns and scalds, 367

CACHEXIA, malarious, 176
Calomel, 482
Camphor, 21
— water, 22
— spirits of, 22
Cancer, 78
— of the breast, 78
— of the womb, 79
— of the liver, 79
— of the stomach, 79
— of the skin, 79

CAN

Canine or dog madness, 207
Cantharides, 499
— plaster of, 499
— tissue, 499
Carbolic acid, 503
Carbuncle, 60, 79
Castor oil, 21
Cataract, 80, 150
Catarrh, 80
— of the bile ducts, 215, 220
Cat bites and scratches, 451
Catheter, description and use of, 349
Caustic case, description and use of, 348
Centipede stings, 456
Chalk, prepared, 486
Change of life, 81, 340
Chaps, 81
Chicken pox, 82, 291
Chilblains, 81
Child crowing, 109
Chill or cold, 528
— — — import of, in India, 528
— — — will re-excite fever, 166, 529
Chin welk, 283, 303
Chloral, 8, 490
— syrup of, 9
Chlorodyne, 9
Chloroform, 10
Choking, 397
Cholera, 83
— secondary fever of, 86
— in children, 88
— prevention of, 88
— pills for distribution to natives, 90
Chordee, *vide* Gonorrhœa, 186
Chorea, 298
Churus, 435
Cinchona bark, 15
Cinchonism, 17
Clergyman's sore throat, 227
Climate of India, 506
— varieties of, in India, 506, 509
— definition of the term, 507
— annual division of, in India, 507
— affected by the monsoons, 508
— physical, 507
— medical, 507
— of the hills, use of the, 520
— periodical change of, 520
Clothing, 515, 526, 538
— during exertion, 515
— flannel, importance of, 515, 538
Club foot, 90

CUT

Coffee, use of, 523
Colchicum, wine of, 489
Cold or chill, 528
— in the head, 80, 104
Colic, 91
— spasmodic, 91
— bilious, 91
— flatulent, 91
— accidental, 91
— inflammatory, 94
Collapse or shock, 370
Collodion, how to apply it to wounds, 444
Colocynth, compound extract of, 474
Compression of the brain, 376
Concussion of the brain, 373
— — — spine, 375
Condy's fluid, 502
Conservancy, 547
Constipation, 94
— of children, 95
Consumption, 98
Convulsions, 100
— of children, 100
— during teething, 312
Cooling drink in fevers, 13, 583
Copaiba, 187
Copper nose or acne, 285
Copperas, 23
Cornea, ulcers of the, 148
Corns, 104, 394
— ulcers from injury of, 394
Cough, 110
— winter, 73
— as a symptom of disease, 33
Coup de soleil, 301
Cow pock, *vide* Vaccination, 288
Cowrass, impetigo, or crusted tetter, 282
Cradle for fractures, description and use of the, 423
Cramps in the stomach, 105
— — — leg during pregnancy, 252
— — writers and telegraphists, 241
Cross birth, 466
Croton oil, 498
Croup, 105
— spasmodic, 109
Crusted tetter, 282
Crutches, 425
Crystalline pock, *vide* Small pox, 291
Cupping, dry, 501
Curved knife or bistoury, description and use of the, 348
Cuts, 377, 443

DEAFNESS, 139
Debility, 110
Delhi sore, *vide* Boils, 61
Delirium, 33, 110
— tremens, 111
Delirium, a symptom of disease, 33
Dengue fever, 180
Dentition, or teething, 303
Derbyshire neck, 113
Dhai or Aymah, rules for choosing a, 552
Dhatura Stramonium, use of, 26
— — poisoning by, 26, 431
Diabetes, 113
Diarrhœa, 114
— from imprudence in diet, 115
— atmospheric changes, 115
— hill, 116
— infantile, 117
— during teething, 312
Diet, rules for, 534
— of persons residing in malarious districts, 524
— importance of vegetable, 268, 524
— for invalids, 578, 581
Diphtheria, 120
Director, description and use of the, 348
Dirt eating by children, *vide* Atrophy, 51
Disease, symptoms of, 27
Diseases of India, principal causes of, 511
— — — how to escape them, 511
Disinfectants, 502
Dislocations, 377
— compound, 378
— of the lower jaw, 378
— shoulder, 379
— elbow, 382
— elbow, partial, in children, 383
— wrist, 383
— thumb and fingers, 384
— hip joint, 384
— knee cap, 387
— knee joint, 387
— semilunar cartilages, 388
— ankle, 389
— bones of the foot, 390
Diuretic medicines, 489
Dog bites, 451
— madness, 208
Doses, remarks on, 3, 36
— table of, 3
Dover's powder, 10
Drops and minims, 5
Dropsy, 124
— from exposure to cold, 124
— — disorders of menstruation, 125
— — disease of heart, 125
— — — — liver, 125
— — — — spleen, 125
— ovarian, 126
Drowning, 390
Dysentery, 126
— chronic, 130
— in children, 119, 131
Dysmenorrhœa, 334
Dyspepsia, 133
Dwelling houses, 541

EAR, diseases of the, 137
— wax in the, 137
— ache, 137
— inflammation of external ear, 138
— — — internal ear, 139
— deafness of the, 139
Eczema, or Running Scall, 140, 279
Effervescing draughts, 485
Elbow joint, injuries of the, 411
Emetics, 490
Emphysema, from fractured ribs, 414
Empyema, 248
Enemas, 497
Ephelis, 272
Epidemics, manner of life during, 548
Epilepsy, 140
Epsom salts, *vide* Sulphate of Soda, 18
Eruptions, 142
Erysipelas, 143
Erythema, 142, 272
— during teething, 311
Ether, nitric, spirits of, 11
Eucalyptus Globulus, 527
Exercise, 538
Expectorant medicines, 478
Extravasation of urine, 298
Eye, diseases of the, 144
— how to foment the, 147
— — — apply lotions to the, 147

FAINTING, or Syncope, 151
— during pregnancy, 249
Falling sickness, 140
Famine fever, 161
Fat, accumulation of, 152
Feet, tenderness of the, 393
— smelling of the, 394

Feet, blisters of the, 394
— ulcers of the, 394
— burning of the, 78
Fever, as a symptom of disease, 35
— general description of, 153
— division of, 154
— simple continued, 154
— ephemeral, 154
— ardent or sun, 154, 302
— typhoid, 155
— typhus, 159
— typhoid and typhus, distinction of, 161
— relapsing, 161
— intermittent, 163
— remittent, 171
— — of infants, 174
— jungle, 171
— Terai, 171
— Bengal, 171
— masked malarious, 175
— malarious, influence of the moon on, 176
— rheumatic, 178, 259
— milk, 178
— puerperal, 179
— dengue, 180
— red, 181
— eruptive, 181
— gastric, 157, 185
— cooling drink for, 13, 583
Fistula, 181
— in ano, 181
Fits, 182
Flat foot, *vide* Clubfoot, 90
Flatulence, 183, 311
— of children, 183
Flannel, use of, 515, 526, 538
Flea bites, 458
Flushing of the face, 184
Fomentations, 492
Forceps, description and use of the, 349
Foreign bodies lodged in the person, 395
— — in the nose, 395
— — — — ears, 395
— — — — eyes, 396
— — — — throat and gullet, 397
— — — — windpipe, 400
— — — — stomach, 400
— — — — skin, 401
— — — — under the nails, 401
— — — — in the private parts, 401
Fowler's solution of arsenic, 478
Fractures, or broken bones, 402
— — — — of the skull, 405
— of the bones of the nose, 406
— — — lower jaw, 406
— — — collar bone, 407
— — — arm bone, 407
— — — fore arm, 411
— — — — — close to the wrist, 411
— or other injuries of the elbow joint, 411
— — — shoulder joint, 411
— — — wrist joint, 412
— partial, or bending, of the fore arm in children, 411
— of the bones of the hand, 412
— of the bones of the fingers, 412
— of the ribs, 413
— — — thigh bone, 414
— — — knee-pan, 418
— — — leg, 419
— — — — immediately above the ankle, 422
— — — foot, 423
— — — tendo Achillis, or heel tendon, 424
Freckles or ephelis, 272
Freezing or cooling mixture, 494
Fumigation, mercurial, 208
Fungus foot disease, 184

GALL nuts, 496
— stones, 184
Ganglion, 425
Gangrene, 236
Gargles, 497
Gastric diseases, 185
— fever, 157, 185
Geological characteristics of the soil of India, 509
Ghunduk, 26
Giddiness a symptom of disease, 34
Ginger, tincture of, 11
Glands, enlarged, 185
— — of the neck, 185
— — — — armpit, 186
— — — — groin, 186
— — — — jaw, 186
Glauber's salts, 17
Gleet, 188
Goa powder, 275
Goître, 113
Gonorrhœa, 186

Gout, 188
Granulations, 190
Granular conjunctiva, 146
Grass oil, 22
Gravel, 190
Green sickness, 42, 193, 331
— vitriol, 23
Grey powder, 483
Grocer's itch, 193, 274, 280
Guinea worm, 193
Gum boil, 195
— lancet, description and use of the, 349
Gums, lancing the, 319

HÆMATEMESIS, or bleeding from the stomach, *vide* Spitting of Blood, 292
Hæmoptysis, or bleeding from the lungs, *vide* Spitting of Blood, 291
Hæmorrhoids, or piles, 242
Hair, 195
— falling off of the, 195
Hanging, 426
Headache, varieties of, 196
— as a symptom of disease, 34
Head-dress for India, 512
Head, injuries of the, 427
— protection of the, from heat, 511
Health, preservation of, 506
Heart, palpitation of the, a symptom of disease, 34, 203
— action of the, 203
— diseases of the, 202
— spasm of the, 204
— fatty,
Heartburn, 204
Heat, 511
— apoplexy, 301
— asphyxia, 301
— suffocation, 301
— fainting or syncope, 300
— spot, *vide* Eczema, 280
— protection from direct, 511
— — — indirect, 516
— insidious effects of, 518
Heel, tendon of the, torn or cut, 424
Hemicrania, *vide* Brow Ague, 199
Hemp, Indian, poisoning by, 435
Hepatalgia, 226
Hepatic disease, 204
Hera-Kusees, 23
Hernia, 204, 438
Herpes, 204, 279
Hiccup, 204
Hill diarrhœa, 116
— climates, utility of, 520
Hing, 20
Hoarseness, 205
Hooping cough, 205
Horn pock, *vide* Small pox, 290
Housemaid's knee, 207
Houses, 541
— construction of, 542
— site of, 544
— position of, 545
— ventilation of, 546
Hydrocele, 213
— from injury, 428
Hydrocephalus, 207
Hydrophobia, 207
Hydrothorax, *vide* Pleurisy, 248
Hypochondriasis, 210
Hysteria, 211
Hysterical paralysis, 240

ILIAC passion, 94
Impetigo, 213, 282
Indigestion, 133
— during pregnancy, 249
Infantile diarrhœa, 117
Infants, new-born, management of, 561
— — resuscitation of, 562
— — alterations of the shape of head or face of, 567
— — retention of urine of, 567
— — swelling of the breasts of, 567
— — ophthalmia of, 567
— — bleeding from the navel-string of, 568
— — proud-flesh in the navel of, 568
— — jaundice of, 346, 568
— — tongue-tied, 568
— — cry of, characteristic, 569
— — giving medicines to, 565
— — examination of, 569
— — clothing of, 565
— — medicine when necessary for, 565
— — management of the navel-string of, 561
— — feeding of, 549
— — artificial feeding of, 555
— — weaning of, 560
Inflammation, 213
Influenza, 214
Injections, 497

Injections, mode of administering to children, *vide* Constipation, 97
Injection syringe, substitute for, 498
Injuries, immediate and general treatment of, 354
Instruments, surgical, required for medicine-chest, 347
Internal organs, position of, 27
Iodine, paint of, 248
Iodide of potassium, effects of, 484
Ipecacuanha, powder of, 12
— wine of, 12
— compound powder of, 10, 13
Iritis, 144, 149
Iron, effects of, 23
— tincture of, 477
— sulphate of, 22
— citrate of, with quinine, 477
— carbonate of, 477
Irrigation, danger of profuse in garden, 527
Itch, 276
Itching, or prurigo, 278
— of the private parts, 255, 278

JABORANDI, 50
Jalap, compound powder of, 475
Jaundice, 214
— of infants, 346, 568
Joints, inflammation of, 216
— wounds of, 446

KAFOOR, 21
Kharee muttee, 18
Kidneys, inflammation of the, 216
— injuries of the, 427

LABOUR, natural, 460
— different kinds of, 461, 465
— bleeding before and after, 462, 468
Lancet abscess, use and description of the, 348
— gum, use and description of the, 349
— vaccinating or bleeding, use and description of the, 349
Lancing of the gums, 319
Larynx, inflammation of the, 217
Laudanum, 119
Laxative prescriptions, 472
Lead, acetate of, 494; nitrate, 505
Leather throat, 120
— plaster, 499
Leech-bites, bleeding from, 364
Leeches. how to apply them, 502
— swallowed, 401
Legs, swelling of the, 299
— — — — — during pregnancy, 252
Lemon grass, 22
Lepra, *vide* Scales or Scaly Eruptions, 284
Leprosy, 218
Lice, 459
— a cause of skin disease, *vide* Prurigo, 278
Lichen tropicus, or 'prickly heat,' 277
Liebig's soup, 478
Ligature, 348, 360
Lime-water, how made, 310, 481
Liniments, 495
Lint, use of, 353
Liquor, 536
— drunkenness from, 537
Liquor, total abstinence from, not recommended, 523, 536
Liver, position of the, 219
— diseases of the, 219
— cancer of the, 79
— congestion of the, 220
— inflammation of the, 221
— chronic inflammation of the, 223
— abscess of the, 224
— neuralgia of the, 226
— causes of disease of the, 518
Local applications, 491
Lock jaw, 229
Loss of voice, 227
Lotions, 493, 497
Lumbago, 229
Lungs, inflammation of the, 230
— — — — — in children, 232
— — — — — — — — during teething, 312
— bleeding from the, 291

MAD dog, treatment of the bite of a, 209
— symptoms characterising a, 208
Maggots in the nose, 345
— in wounds, *vide* Wounds, 445
Magnesia, granular effervescing citrate of, 13
Majoon, 435
Malaria, characteristics of, 163, 521
— how to guard against, 522
— present in water. 525
— may be absorbed by the skin, 526

Malaria more powerful near the surface of the earth, 526
— may kill at once, 526
— trees prevent passage of, 527
Measles, 233
— distinction of, from small pox and scarlet fever, 234
Measures used in compounding medicines, 6
Measurement of fluids, rough, 7
— — — minim, 5
Medicine-chest, contents of, 1
Medicines, doses of, 3, 36
— mode of administering to children, 570
— bazaar or Indian, 2, 18
— description of, 7
— compounding of, 7
Megrims, 199
Menorrhagia, 335
Mercury, 482
— red iodide of, 496
— fumigation with, *vide* Hydrophobia, 208
— salivation from, 262, 482
Migraine, 199
Milk, human, composition of, 551
— animal, composition of, 555
— how to prepare for infants' food, 556
— condensed, use of, 557
Minims and drops, 5, 6
Miscarriage, 236, 255
Moles, 236
Monsoons, 508
Moon, influence of the, on malarious fevers, 176
— blindness, 177
— paralysis, 177
Morning sickness, 237, 250
Morphia, hydrochlorate of, 490
Mortification, 236
Mothers' marks, 236
Mumps, 237
Muscæ volitantes, or spots before the eyes, 150, 238, 295
Musquito-stings, 457
Mustard poultice, 498
— — for children, 498
— leaves, 499

NÆVUS, 239
Nails, diseases of the, 238
Naushadur or Nissadal, 19, 494
Navel, rupture at the, 440
Navel string, management of the, after birth, 561
— — bleeding from the, 568
— — proud flesh in the, 568
Needle, curved, description and use of the, 349
Nervousness, 239
Nettle-rash, 273, 322
Neuralgia, 239
Nipples, sore, 239
Nodes, *vide* Venereal Disease, 323
Nose, maggots in the, 345
— bleeding from the, 363

OINTMENTS, 496
Onychia, *vide* Disease of the Nails. 238
Ophthalmia, 144, 240
— purulent, 145
— of new-born children, 567
Opiate medicines, 490
Opium, extract of, Recipe 65, p. 488
— tincture of, Recipe 60, 61, p. 487
— camphorated tincture of, 13
— with ipecacuanha powder, 10
— poisoning by, 429
Over-nursing, 42, 560

PAIN, a symptom of disease, 34
Palsy, scriveners', or writers', 241
Paralysis, or palsy, 240
— hysterical, 240
Paraphymosis, 242
Paregoric, 13
Passions, conduct of the 547
Peenash, or worms in the nose, 345
Peppermint oil, Recipe 35, p. 480
Peruvian bark, 15
Phitkari, 18
Piles, 242
— during pregnancy, 253
Pills, 473
Phlegmasia dolens, 470
Phymosis, 242
Plaster, adhesive, 353
— leather, 499
Pleurisy, 245
— chronic, 247
Pneumonia, 230
— in children, 232
— — — during teething, 312
Poisoning by arsenic, 428
— by opium, 429

Poisoning by opium in children, 430
— — dhatura, 431
— — aconite, 433
— — strychnine, 434
— — Indian hemp, 435
— — quinine, *vide* Masked Fever, 176
Poisons and antidotes for, 437
Pocket-case, surgical, contents of, 347
Podophyllum, 14
Pomegranate, 24
— decoction of root bark of, 24
— — — rind of, 24
Potash, bicarbonate of, Recipe 55, p. 485
— nitrate of, 24
Potassium, iodide of, effects of, 484
Poultices, 491
Pregnancy, duration of, 248
— indigestion during, 249
— faintness during, 249
— morning sickness during, 250
— toothache and salivation during, 251
— swelling of the legs during, 252
— varicose veins during, 252
— cramps during, 252
— irritation of the breasts during, 252
— piles during, 253
— irritation of the bladder during, 253
— — — — private parts during, 253
— miscarriage during, 255
— bleeding during, 256, 468
Prescriptions, 472
Prickly heat, 257, 277
Private parts, injuries of the, 428
— — irritation of the, during pregnancy, 253
— — occlusion of the, in infants, 242
Probang, 399
Probe, description and use of the, 348
Prostate gland, enlargement of the, 257
Prurigo, or itching, 258, 278
Psoriasis, 258, 283
Pulse, characteristics of the, 29
Punkah, use of the, 516
Purgative prescriptions, 472
Pustules, 271, 281
Pyrosis, or water brash, *vide* Dyspepsia, 134

QUICKENING, 249
Quinine, sulphate of, 15
— — — action of, 15
— — — test of purity of, 15
— poisoning by, 176
Quinine, prophylactic use of, 524
Quinsy, 258, 319

RABIES, or canine madness, 208
Railway spine, 375
Rainfall, in India, 508
Rashes, 271
Raw meat soup, Liebig's, 478
Red fever, or dengue, 181
Red gum, 272
Respiration, 30
— artificial, for drowning, 391
— — — hanging, 426
— physiology of, 518
Respirator for malaria, 522
Rheumatic fever, 178, 258
— gout, *vide* Rheumatism, 261
Rheumatism, acute, 258
— chronic, 261
— muscular, 261
Rhubarb powder, Recipe 16, p. 475
— pill, compound, Recipe 1, p. 473
Rickets, 261
Rindee Ka Tail, 21
Ringworm, 262, 274
— crusted, *vide* Scald Head, 281
Rollers, 350
Rosa Ka Tail, 22
Roseola, or rose rash, 262, 272
— — — — premonitory of small pox, *vide* Small pox, 285
— — — — during teething, 311
Round worm, 343
Running scall, or eczema, 279
Rupture, or broken belly, 438
— at the navel, 440

SAL AMMONIAC, 19
Santonin, 343, 344
Salivation, 262
— mercurial, 482
— during pregnancy, 251
Saltpetre, 24
Sal volatile, 8
Scabies, 263, 276
Scald head, 263, 281
Scalds and burns, 367
— of the throat, 370
Scales, or scaly eruptions, 271, 283
Scall, or crusted tetter, 282
Scarlet fever, or scarlatina, 263
Sciatica, 266
Scilla, or squills, 478

Scilla, or squills, tincture of, 480
Scissors, surgical, description and use of, 349
Scorbutic ulcer, 270
Scorpion sting, 456
Scrofula, 267
— latent or hidden, *vide* Scurvy, 268
Scurvy, 267
Sea sickness, 271
Secondary symptoms, 322
Seidlitz, or effervescing draught, 485
Senna leaves, 25
— mukkee, 25
Shingles, *vide* Herpes, 279
Shock, or collapse, 370
Shora, 25
Shoulder, injuries of the, 379, 411
Sickness, morning, during pregnancy, 250
Sick room, management of the, 571
— — ventilation of the, 571
— — appearance of the, 573
— — cleanliness of the, 575
— — disposal of dejections of the, 577
— — deodorisation of the, 577
— — dietetics of the, 578
— — quiet of the, 579
— — aspect of the, 580
Silver, nitrate of, 149
Sitz bath, *vide* Dyspepsia, 136
Skin diseases, 271
— — during teething, 310
— — syphilitic, 323
— structure of the, 526, 540
— may absorb malaria, 526
Sleep, 533
Sleeping in the open air, 517, 534
Small pox, 284
— — modified, 290
Snake bite, 452
Sneezing, spasmodic, *vide* Catarrh, 81
Soda, bicarbonate of, *vide* Recipe 51, 52, 56, p. 485
— sulphate of, 17
Soil of India, 509
Soothing applications, 494
Sore throat, 35
— — clergyman's, 227
Spanish fly, 499
Spatula, or blunt knife, description and use of the, 349
Spectacles, best colour for, 151
Spine, protection of the, from heat, 514
— concussion of the, 375
— railway, 375
Spitting of blood, 291
Spleen disease, 292
— rupture of the, 294
Splints, mode of applying, 403
Sponge, use of, 353
Spots before the eyes, 150, 295
Sprains, or strains, 441
Starch bandage, 499
St. Anthony's fire, 143
St. Vitus's dance, 298
Steel wine, 477
Stiff neck, *vide* Rheumatism, 261
Stimulating sedative medicines, 488
— applications, 496
— gargles, 497
Stitches, how to apply them to wounds, 444
Stomach, cancer of the, 79
— bleeding from the, 292
— ulcers of the, 292
Stone apple, 20
Stone in the bladder, 56
Stramonium, 26
Stricture, 295
— of the gullet, 295
— — — rectum, 295
— — — urethra, 295
— — — — permanent, 295
— — — — spasmodic, 296
Strophulus, *vide* Roseola, 273
Strychnine, poisoning by, 434
Strychnos potatorum fruit, use of, 531
Stunning, *vide* Concussion, 373
Stye, 144, 298
Suckling, exhaustion from, 560
Suffocation from heat, *vide* Sunstroke, 301
Sulphur, 26
Sun-stroke, 299
— flower, use of the, 527
— fever, 154, 302
Swelling of the legs, 299
— — — — during pregnancy, 252
Sweet spirits of nitre, 11
Sycosis, or chin welk, 283, 303
Syncope, 151
— from heat, 300
Syphilis, 303, 322

TAPE-WORM, 341
Tartar emetic, 491
Tatty, use and danger of the, 516
Teeth, growth of the first set of, 305
— — — — second set of, 312

Teeth, wisdom, cutting of the, 313
— breeding of the, *vide* Teething, 310
— extraction of the, 316
— injuries of the, 442
Teething, 303
— maladies occurring during, 310
Telegraphist's cramp, 241
Temperature of the body, 30
— of Indian climates, 506, 509
— of baths, 500, 541
Tenaculum, description and use of the, 349
Testicle, inflammation of the, 187
— injuries of the, 428
Tetanus, 313
Tetter, or herpes, 279, 313
— crusted, or impetigo, 282
Tetter, dry, or psoriasis, 283
Thatch, or 'chupper,' rotten, danger of, 527, 541
Thermantidote, use and danger of, 516
Thirst, 532
Thread worms, 344
Throat, sore, a symptom of disease, 35
— inflammation of the, 319
— ulceration of the, 319
— gathering of the, 319
Thrush, or aphthæ, 311, 320
Tic Douloureux, *vide* Neuralgia, 239, 315
Tiger bites and scratches, 450
Tobacco smoking, 523
Toes, blisters and ulcers of the, 394
Tonic prescriptions, 476
Tongue, characteristics of the, 31
— ulcers of the, 319
Toothache, 315
— during pregnancy, 251
Tooth drawing, 316
Tourniquet, description and use of the, 354
— stick and handkerchief, 362
Tow, use of, *vide* Sponge, 353
Treatment advised, intention of, 3
Trees, utility of, against malaria, 164, 527
Tubercles, *vide* Skin Diseases, 271, 284, 321
Tubercular meningitis, 64
Tumours, 321
Turban or puggree, uses of the, 513
Turpentine oil, Recipe 106, p. 498
— stupe, 498
Twin births, 467

ULCERATED throat, 319
Ulcer of toes and heel, 394
— — cornea, 148
— — stomach, *vide* Spitting of Blood, 292
— — tongue, 319
Ulcers, 321
— scorbutic, 270
Urine, bloody, 321
— diseased conditions of, 322
— retention of, 442
Urticaria, or nettle-rash, 273
Uvula, elongation of the, 228

VACCINATION, 287
Veins, course of the, 355
— bleeding from the, 358
— varicose, or enlarged, during pregnancy, 252
Venereal disease, 322
— — in children, 324
Ventilation, 516, 546
Vesicles, 271, 274
Vomiting, a symptom of disease, 35, 325
— of children, 311, 558

WARTS, 325
Wart-pock, *vide* Modified Small Pox, 290
Water, distilled, 7
— brash, 134
— for drinking, importance of good, 529, 557
— may contain malaria, 165, 525
— diseases communicated by impure, 529
— filter, construction of, 530
— other means of purifying, 531
— aerated, often impure, 532
— how to be prepared for infants' food, 557
Wax, accumulation of, in the ear, 137
Weak sight, 151
Weaning, 560
Weights used in compounding medicines, 6
Weird, or milk fever, 178
Wells in India, dirty condition of, 530
Wetting the bed by children, 326
White diarrhœa, 116
— swelling, 329

Whites, 328
Whitlow, 327
Womb, diseases of the, 329
— inflammation of the, 337
— chronic inflammation or congestion of the, 338
— displacement of the, 255, 339
Worms, 341
— in the nose, 345
— in wounds, 445
Wounds, 443
— how to dress, 443
— lacerated, 445
— of the scalp, 445
— punctured, 446
— gun-shot, 446
— of internal organs, 446
— — the brain, 446
— — — lungs, 447
— — — throat, 448
— — — eyes, 448
— — — palm of the hand, 449
Wounds of the tongue, 449
— from bites of animals, 450
— — claws of animals, 451
— — snake-bites, 452
— — scorpions, 456
— — centipedes, 456
— — wasp and bee stings, 456
— — musquitos, 457
— — leeches, 458
— — flea-bites, 458
— — bug-bites, 459
— — lice, 459
— maggots or worms in, 445
Writer's cramp, 241

YELLOW gum, 346

ZINC, sulphate of, Recipe 96, 103, p. 497

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